SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT *STATIONARY SOURCE COMPLIANCE DIVISION* APPLICATION PROCESSING AND CALCULATIONS	Pages 74	Page 1
	Appl. No. See Below	Date 9/12/12
	Processed By Rafik Beshai	Checked By

PERMIT TO OPERATE
PERMIT TO CONSTRUCT

COMPANY NAME: BP WEST COAST PRODUCTS LLC – Facility ID: 131003

MAILING ADDRESS: P.O. BOX 6210
CARSON, CA 90749

EQUIPMENT ADDRESS: 2350 E. 223rd STREET
CARSON, CA 90810

Permit to Operate

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions and Requirements	Conditions
Process 6: CATALYTIC REFORMING					
System 4: CATALYTIC REFORMING UNIT HEATERS					
HEATER, NO.1 REFORMER, NO. 014, REFINERY GAS, ALCORN COMBUSTION COMPANY, WITH LOW NOX BURNER, 255 MMBTU/HR WITH A/N: ~~395838~~ 453163 BURNER, 75 BURNERS, REFINERY GAS, ZEECO, MODEL ZEECO, GLSF-9, WITH LOW NOX BURNER, 255 MMBTU/HR	D532	S533 S534 DX2	NOX: MAJOR SOURCE** ; SOX: MAJOR SOURCE**	**CO**: 2000 PPMV (5) [**RULE 407, 4-2-1982**]; **PM**: (9) [**RULE 404, 2-7-1986**]; **PM**: 0.1 GRAINS/SCF (5) [**RULE 409, 8-7-1981**]	B61.4, C1.19, D90.4, D328.1, H23.1, K67.1
STACK, HEIGHT: 40 FT ; DIAMETER: 7 FT A/N: ~~395838~~ 453163	S533	D532			
STACK, HEIGHT: 40 FT ; DIAMETER: 7 FT A/N: ~~395838~~ 453163	S534	D532			

HEATER, NO.2 REFORMER, # 015, REFINERY GAS, ALCORN COMBUSTION COMPANY, WITH LOW NOX BURNER, 310 MMBTU/HR WITH A/N: ~~395971~~ 453164 BURNER, 72 BURNERS, REFINERY GAS, JOHN ZINK, MODEL PSMR-12R(32 BURNERS), MODEL PSMR-15R(40 BURNERS), WITH LOW NOX BURNER, 310 MMBTU/HR ~~BURNER, 15 BURNERS, NATURAL GAS, REFINERY GAS, JOHN ZINK, MODEL HPMRA~~	D535	S536 S537 DX7	NOX: MAJOR SOURCE**; SOX: MAJOR SOURCE**	**CO**: 2000 PPMV (5) [**RULE 407, 4-2-1982**]; **PM**: (9) [**RULE 404, 2-7-1986**]; **PM**: 0.1 GRAINS/SCF (5) [**RULE 409, 8-7-1981**]	B61.4, C1.20, D90.4, D328.1, H23.1, K67.1
STACK A/N: ~~395971~~ 453164	S536	D535			
STACK A/N: ~~395971~~ 453164	S537	D535			
HEATER, NO.3 REFORMER, NO.016, REFINERY GAS, ALCORN COMBUSTION COMPANY, WITH LOW NOX BURNER, 171 MMBTU/HR WITH A/N: ~~395649~~ 453165 BURNER, 40 BURNERS, REFINERY GAS, CALLIDUS, MODEL LE-CSG-4W, WITH LOW NOX BURNER, 171 MMBTU/HR	D1439	DX8	NOX: MAJOR SOURCE**; SOX: MAJOR SOURCE**	**CO**: 2000 PPMV (5) [**RULE 407, 4-2-1982**]; **PM**: (9) [**RULE 404, 2-7-1986**]; **PM**: 0.1 GRAINS/SCF (5) [**RULE 409, 8-7-1981**]	B61.4, D90.4, D328.1, H23.1, K67.1

Permit to Construct

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions and Requirements	Conditions
Process 6: CATALYTIC REFORMING					
System 1: NO. 1 CATALYTIC REFORMER UNIT					S13.2, S15.6, S46.1, S46.2, S56.1
DRYER, WEST HYDROGEN, RW 6109, HEIGHT: 16 FT; DIAMETER: 3 FT A/N ~~504559~~ 501003	D1434				
COLUMN, DESULFURIZER STRIPPER, RPV 2713, HEIGHT: 50 FT; DIAMETER: 5 FT 6 IN A/N ~~504559~~ 501003	D426				
DRYER, EAST HYDROGEN, RW 6110, HEIGHT: 16 FT; DIAMETER: 3 FT A/N ~~504559~~ 501003	D1435				
VESSEL, HIGH PRESSURE MDEA CONTACTOR, RPV 2716, HEIGHT: 48 FT; DIAMETER: 5 FT 6 IN A/N ~~504559~~ 501003	D427				
KNOCK OUT POT, HYDROGEN DRYER, RW6111, HEIGHT: 8 FT; DIAMETER: 2 FT A/N ~~504559~~ 501003	D1436				
REACTOR, DESULFURIZER, RPV 2702, HEIGHT: 24 FT 4 IN; DIAMETER: 11 FT A/N ~~504559~~ 501003	D428				
KNOCK OUT POT, HIGH PRESSURE MDEA, RPV 2755, HEIGHT: 12 FT; DIAMETER: 4 FT A/N ~~504559~~ 501003	D429				

ACCUMULATOR, RPV 2715, DESULFURIZER STRIPPER OVERHEAD, LENGTH: 10 FT; DIAMETER: 4 FT A/N ~~504559~~ 501003	D430			BENZENE: (10) [40CFR 61 Subpart FF_02, 12-4-2003]; VOC: 500 PPMV (8) [40CFR 61 Subpart FF, 12-4-2003]	H23.12
KNOCK OUT POT, RPV 2718, FUEL GAS, HEIGHT: 8 FT; DIAMETER: 4 FT A/N ~~504559~~ 501003	D431				
FILTER, REFORMER CHARGE, RPV 2711, MORLANE COMPANY, MODEL TYPE 600-R-6, HEIGHT: 5 FT; DIAMETER: 1 FT 6 IN A/N ~~504559~~ 501003	D432				
FILTER, REFORMER CHARGE, RPV 2712, MORLANE COMPANY, MODEL TYPE 600-R-6; HEIGHT: 5 FT; DIAMETER: 1 FT 6 IN A/N ~~504559~~ 501003	D433				
COMPRESSOR, RW 0005-087.03, DESULFURIZER FEED GAS, INGERSOLL-RAND, RECIPROCATING A/N ~~504559~~ 501003	D434				E193.X1, K67.X1
COMPRESSOR, RW 0006-087.03, DESULFURIZER ~~RECYCLE~~ FEED GAS, SPARE, INGERSOLL-RAND, RECIPROCATING A/N ~~504559~~ 501003	D435				E193.X1, K67.X1
~~COLUMN, HYDROGENATION STRIPPER, RPV 2724, HEIGHT: 48 FT; DIAMETER: 4 FT 4 IN~~ ~~A/N 504559~~	~~D436~~				
VESSEL, LOW PRESSURE MDEA CONTACTOR, RPV 2717, HEIGHT: 53 FT 5 IN; DIAMETER: 3 FT 6 IN A/N ~~504559~~ 501003	D437				

KNOCK OUT POT, LOW PRESSURE MDEA, RPV 2719, HEIGHT: 6 FT; DIAMETER: 6 FT 6 IN A/N ~~504559~~ 501003	D438				
REACTOR, HYDROGENATION, RPV 2701, HEIGHT: 13 FT; DIAMETER: 5 FT 6 IN A/N 504559 501003	D439				
TANK, FLASH, REFORMER, RPV 2739, HEIGHT: 15 FT; DIAMETER: 6 FT 5 IN A/N 504559 ~~501003~~	D440				
~~TANK, FLASH, HYDROGENATION, RPV 2720, HEIGHT: 10 FT; DIAMETER: 4 FT 6 IN A/N 504559~~	~~D441~~				
~~KNOCK OUT POT, HYDROGENATION WATER, RPV 2721, HEIGHT: 8 FT; DIAMETER: 3 FT A/N 504559~~	~~D442~~				
~~DRUM, RPV 2727, HYDROGENATION STRIPPER REFLUX, HEIGHT: 8 FT; DIAMETER: 4 FT A/N 504559~~	~~D443~~				
DRUM, RPV 2728, CONTAMINATED WATER, HEIGHT: 6 FT; DIAMETER: 3 FT A/N ~~504559~~ 501003	D444				
COLUMN, REFORMER STABILIZER, RPV 2743, HEIGHT: 96 FT 6 IN; DIAMETER: 5 FT 6 IN A/N ~~504559~~ 501003	D445				
REACTOR, NO. 1 REFORMER, RPV 2748, HEIGHT: 20 FT; DIAMETER: 5 FT 4 IN A/N ~~504559~~ 501003	D446			HAP: (10) [40CFR 63 Subpart UUU, #1, 4-20-2006]	E336.X1, E336.X2

REACTOR, NO. 2 REFORMER, RPV 2747, HEIGHT: 20 FT 9 IN; DIAMETER: 5 FT 4 IN A/N ~~504559~~ 501003	D447			HAP: (10) [40CFR 63 Subpart UUU, #1, 4-20-2006]	E336.X1, E336.X2
REACTOR, NO. 3 REFORMER, RPV 2750, HEIGHT: 19 FT 3 IN; DIAMETER: 7 FT 4 IN A/N ~~504559~~ 501003	D448			HAP: (10) [40CFR 63 Subpart UUU, #1, 4-20-2006]	E336.X1, E336.X2
REACTOR, NO. 4 REFORMER, RPV 2751, HEIGHT: 13 FT; DIAMETER: 11 FT 10 IN A/N ~~504559~~ 501003	D449	DX2		HAP: (10) [40CFR 63 Subpart UUU, #1, 4-20-2006]	E336.X1, E336.X2
COMPRESSOR, RW 0022-087.06, DESULFURIZER RECYCLE, CENTRIFUGAL A/N ~~504559~~ 501003	D451				E193.X2
RESERVOIR, LUBE OIL, FOR COMPRESSOR RW 0022-087.06, NITROGEN PURGE, LENGTH: 8 FT; HEIGHT: 4 FT 6.5 IN; WIDTH: 7 FT A/N 501003	DX1	D1313 D1314 D2807			E74.2
EJECTOR, DESULFURIZER-HYDROGENATION EVACUATOR, RW 19 15401 A/N ~~504559~~ 501003	D452				
EJECTOR, REFORMER EVACUATOR, RW 20 154.02 A/N ~~504559~~ 501003	D453				
COMPRESSOR, RW 0004-087.06, REFORMER RECYCLE GAS, ~~RECIPROCATING~~, ~~SIX~~ FIVE STAGES, CENTRIFUGAL A/N ~~504559~~ 501003	D454				

RESERVOIR, LUBE OIL, FOR COMPRESSOR RW 0004-087.06, NITROGEN PURGE, LENGTH: 16 FT 10.5 IN; HEIGHT: 1 FT 8 IN; WIDTH: 6 FT 10 IN A/N ~~504559~~ 501003	D2907	D1313 D1314 D2807			E74.2
DRUM, RPV 0235, FUEL GAS NORTH AREA, HEIGHT: 12 FT; DIAMETER: 6 FT A/N ~~504559~~ 501003	D455				
TANK, RPV 2775, TCA INJECTION, HEIGHT: 3 FT; DIAMETER: 2 FT A/N ~~504559~~ 501003	D456				
REACTOR, RPV 3286, R4B, HEIGHT: 12 FT 5 IN; DIAMETER: 11 FT 10 IN A/N ~~504559~~ 501003	D457	DX2		HAP: (10) [40CFR 63 Subpart UUU, #1, 4-20-2006]	E336.X1, E336.X2
SCRUBBER, NO. 1 REFORMER, INTERNAL TO PROCESS PIPING, SODA ASH/WATER SOLUTION INJECTION INTO COOLER, WITH COOLER, REFORMER EFFLUENT COOLER TOP, RPV 3287, AND REFORMER EFFLUENT COOLER BOTTOM, RPV 3288 A/N 501003	DX2	D449 D457 D532			
DRUM, TRAP, RPV 4016, HYDROGEN SYSTEM CHLORIDE, HEIGHT: 7 FT 10 IN; DIAMETER: 5 FT A/N ~~504559~~ 501003	D458				
DRUM, RPV 4030, STABILIZER REFLUX, HEIGHT: 16 FT; DIAMETER: 4 FT A/N ~~504559~~ 501003	D459				
DRUM, TRAP, RPV 5106, SULFUR, HEIGHT: 10 FT 9 IN; DIAMETER: 6 FT A/N ~~504559~~ 501003	D460				

FILTER, FUEL GAS, RPV 5653-289.02, HEIGHT: 9 FT 4 IN; DIAMTER: 1 FT 10 IN A/N 501003	DX3				
KNOCK OUT POT, RPV 2756, REFORMER RECYCLE, HEIGHT: 8 FT; DIAMETER: 5 FT A/N 501003	D450				
FUGITIVE EMISSIONS, MISCELLANEOUS A/N ~~504559~~ 501003	D2489			HAP: (10) [40CFR 63 Subpart CC, #5A, 6-23-2003]	H23.3
System 2: NO. 2 CATALYTIC REFORMER UNIT					S13.2, S15.6. S56.1
KNOCKOUT POT, PRV 3106, NO. 2 REFORMER RECYCLE GAS, HEIGHT: 14 FT 4 IN; DIAMETER: 10 FT A/N 501004	D466				
KNOCKOUT POT, RPV 3107, NO. 2 REFORMER DESULFURIZER COMPRESSOR, HEIGHT: 8 FT 4 IN; DIAMETER: 5 FT A/N 501004	D467				
FILTER, FUEL GAS, NO. 2 REFORMER, RPV 5756, HEIGHT: 8 FT 6 IN; DIAMETER: 1 FT 10 IN A/N 501004	DX4				
DRUM, SULFUR TRAP, NO. 2 REFORMER & DESULFURIZER, RPV 5107, HEIGHT: 12 FT 5 IN; DIAMETER: 6 FT A/N 501004	DX5				
POT, CHLORINE INJECTION, NO. 2 REFORMER, RPV 6257, HEIGHT: 3 FT; DIAMETER: 2 FT A/N 501004	DX6				

REACTOR, REFORMER NO. 2, RPV 3100, HEIGHT: 18 FT; DIAMETER: 8 FT 6 IN A/N ~~504560~~ 501004	D461			HAP: (10) [40CFR 63 Subpart UUU, #1, 4-20-2006]	E336.X1, E336.X3
REACTOR, DESULFURIZER, RPV 3101, HEIGHT: 25 FT; DIAMETER: 12 FT 6 IN A/N ~~504560~~ 501004	D462				
REACTOR, REFORMER NO. 3-B, RPV 3103, HEIGHT: 14 FT 10 IN; DIAMETER: 15 FT A/N ~~504560~~ 501004	D463	DX7		HAP: (10) [40CFR 63 Subpart UUU, #1, 4-20-2006]	E336.X1, E336.X3
REACTOR, REFORMER, NO. 3-A, RPV 3104, HEIGHT: 14 FT 10 IN; DIAMETER: 15 FT A/N ~~504560~~ 501004	D464	DX7		HAP: (10) [40CFR 63 Subpart UUU, #1, 4-20-2006]	E336.X1, E336.X3
REACTOR, REFORMER, NO. 1, RPV 3105, HEIGHT: 16 FT 6 IN; DIAMETER: 7 FT A/N ~~504560~~ 501004	D465			HAP: (10) [40CFR 63 Subpart UUU, #1, 4-20-2006]	E336.X1, E336.X3
SCRUBBER, NO. 2 REFORMER, INTERNAL TO PROCESS PIPING, SODA ASH/WATER SOLUTION INJECTION INTO COOLER, WITH COOLER, REFORMER EFFLUENT COOLER WEST TOP/BOTTOM, RPV 3123/3122, AND REFORMER EFFLUENT COOLER EAST TOP/BOTTOM, RPV 3125/3124 A/N 501004	DX7	D463 D464 D535			
VESSEL, MDEA CONTACTOR, RPV 3108, HEIGHT: 56 FT 11 IN; DIAMETER: 5 FT 6 IN A/N ~~504560~~ 501004	D468				
VESSEL, SEPARATOR, RPV 3133, SOUR WATER OIL, HEIGHT: 6 FT; DIAMETER: 2 FT A/N ~~504560~~ 501004	D469				

ACCUMULATOR, RPV 3134, DESULFURIZER STRIPPER, OVERHEAD, HEIGHT: 13 FT; DIAMETER: 3 FT 6 IN A/N ~~504560~~ 501004	D470				
COLUMN, DESULFURIZER STRIPPER, RPV 3135, HEIGHT: 53 FT 6 IN; DIAMETER: 5 FT 6 IN A/N ~~504560~~ 501004	D471				
FILTER, RPV 5863, CATALYST, MOORLANE, MODEL 246, HEIGHT: 7 FT; DIAMETER: 2 FT 2 IN A/N ~~504560~~ 501004	D472				
FILTER, RPV 5864, CATALYST, MOORLANE, MODEL 246, HEIGHT: 7 FT; DIAMETER: 2 FT 2 IN A/N ~~504560~~ 501004	D473				
TANK, FLASH, REFORMER, RPV 3137, HEIGHT: 15 FT; DIAMETER: 10 FT A/N ~~504560~~ 501004	D474	C1308		HAP: (10) [40CFR 63 Subpart CC, #2, 6-23-2003]	
POT, RPV 3146, STABILIZER REBOILER CONDENSATE, HEIGHT: 2 FT 6 IN; DIAMETER: 1 FT 8 IN A/N ~~504560~~ 501004	D475				
COMPRESSOR, RW 0007-087.06, REFORMER RECYCLE, CENTRIFUGAL, WITH TWO OIL SEALS A/N ~~504560~~ 501004	D476				E193.X2
RESERVOIR, LUBE OIL, FOR COMPRESSOR RW 0007-087.06, NITROGEN PURGE, LENGTH: 7 FT; HEIGHT: 2 FT 5.5 IN; WIDTH: 6 FT A/N ~~504560~~ 501004	D2908	D1313 D1314 D2807			E74.2
COMPRESSOR, RW 0009-087.03, DESULFURIZER FEED/RECYCLE, TURBINE, RECIPROCATING A/N ~~504560~~ 501004	D477				E193.X1, K67.X1

COMPRESSOR, RW 0010-087.03, DESULFURIZER FEED/RECYCLE, RECIPROCATING, TWO CYLINDERS A/N ~~504560~~ 501004	D478				E193.X1, K67.X1
EJECTOR, REFORMER EVACUATER JET, RW 0051 154.01 A/N ~~504560~~ 501004	D479				
EJECTOR, SURFACE CONDENSER EVACUATER JETS, RW 0052 154.01 A/N ~~504560~~ 501004	D480				
COLUMN, STABILIZER, RPV 3143, HEIGHT: 69 FT 6 IN; DIAMETER: 7 FT A/N ~~504560~~ 501004	D481				
ACCUMULATOR, RPV 3142, REFORMER STABILIZER OVERHEAD, HEIGHT: 16 FT; DIAMETER; 5 FT 6 IN A/N ~~504560~~ 501004	D482				
KNOCK OUT POT, RPV 2893, FUEL GAS, HEIGHT: 8 FT; DIAMETER: 5 FT A/N ~~504560~~ 501004	D483				
KNOCK OUT POT, CHLORIDE TRAP, RPV 3293, HEIGHT: 11 IN; DIAMETER: 4 IN A/N ~~504560~~ 501004	D485				
DRUM, CHLORIDE TRAP, RPV 4017, HEIGHT: 36 FT; DIAMETER: 7 FT 6 IN A/N ~~504560~~ 501004	D486				
FUGITIVE EMISSIONS, MISCELLANEOUS A/N ~~504560~~ 501004	D2490			HAP: (10) [40CFR 63 Subpart CC, #5A, 6-23-2003]	H23.3
System 3: NO. 3 CATALYTIC REFORMER UNIT					S13.2, S31.4, S56.1

KNOCK OUT POT, RPV 2366, HYDROGEN RECYCLE, HEIGHT: 10 FT; DIAMETER: 7 FT A/N ~~535604~~ 501002	D487				
DRUM, RPV 2781, STABILIZER REBOILER CONDENSATE, HEIGHT: 2 FT 4 IN; DIAMETER: 1 FT 8 IN A/N ~~535604~~ 501002	D488				
ACCUMULATOR, RPV 2849, STABILIZER OVERHEAD, HEIGHT: 8 FT; DIAMETER: 4 FT A/N ~~535604~~ 501002	D489				
TOWER, REFORMATE STABILIZER, RPV 2850, HEIGHT: 77 FT; DIAMETER: 6 FT A/N ~~535604~~ 501002	D490				
COLUMN, WASH, RPV 2800, RAFFINATE WATER, HEIGHT: 24 FT; DIAMETER: 3 FT A/N ~~535604~~ 501002	D491				
COLUMN, WASH, RPV 2801, RAFFINATE WATER, HEIGHT: 24 FT; DIAMETER: 3 FT A/N ~~535604~~ 501002	D492				
VESSEL, EXTRACTOR, RPV 2806, HEIGHT: 77 FT; DIAMETER: 8 FT A/N ~~535604~~ 501002	D493				
COLUMN, STRIPPER, RPV 2807A, HEIGHT: 118 FT; DIAMETER: 7 FT A/N ~~535604~~ 501002	D494				
TANK, STRIPPER FLASH, RPV 2807B, HEIGHT: 9 FT 7 IN; DIAMETER: 7 FT A/N ~~535604~~ 501002	D495				
VESSEL, RECEIVER, EXTRACTOR, RPV 2810, LENGTH: 16 FT; DIAMETER: 4 FT A/N ~~535604~~ 501002	D496				

VESSEL, RECEIVER, RPV 2816, STRIPPER OVERHEAD, LENGTH: 16 FT; DIAMETER: 5 FT 6 IN A/N ~~535604~~ 501002	D497				
VESSEL, RECEIVER, RPV 2819, WATER, LENGTH: 16 FT; DIAMETER: 3 FT A/N ~~535604~~ 501002	D498				
REGENERATOR, RPV 2822, SOLVENT, HEIGHT: 27 FT 6 IN; DIAMETER: 6 FT A/N ~~535604~~ 501002	D499				
COLUMN, RPV 2823, WATER, HEIGHT: 32 FT; DIAMETER: 3 FT 6 IN A/N ~~535604~~ 501002	D500				
DRUM, TRAP, RPV 2872, SULFUR, HEIGHT: 6 FT 9 IN; DIAMETER: 9 FT 10 IN A/N ~~535604~~ 501002	D501				
KNOCK OUT POT, RPV 2896, FUEL GAS A/N ~~535604~~ 501002	D503				
FILTER, RPV 2948, SOLVENT W, HEIGHT: 2 FT 8 IN; DIAMETER: 10 IN A/N ~~535604~~ 501002	D504				
FILTER, RPV 2949, SOLVENT E, HEIGHT: 2 FT 8 IN; DIAMETER: 10 IN A/N ~~535604~~ 501002	D505				
DRUM, CHLORIDE TRAP, RPV 4015, HEIGHT: 7 FT 10 IN; DIAMETER: 5 FT 10 IN A/N ~~535604~~ 501002	D506				
TANK, SURGE, RPV 2836, FEED, LENGTH: 32 FT; DIAMETER: 9 FT A/N ~~535604~~ 501002	D507				

ACCUMULATOR, RPV 2843, OVERHEAD, VENTED TO VAPOR RECOVERY SYSTEM, LENGTH: 20 FT; DIAMETER: 8 FT A/N ~~535604~~ 501002	D508				E71.9
COLUMN, NO. 3 REFORMER FRACTIONATOR DEISOPENTANIZER/DEHEXANIZER, RPV 2845, HEIGHT: 93 FT 6 IN; DIAMETER: 8 FT A/N ~~535604~~ 501002	D509				
POT, INJECTION, RPV 4045, CHLORIDE, HEIGHT: 5 FT 8 IN; DIAMETER: 2 FT A/N ~~535604~~ 501002	D510				
VESSEL, RECEIVER, RPV 5109, WATER COLUMN, HEIGHT: 12 FT; DAIMETER: 2 FT A/N ~~535604~~ 501002	C511				
TANK, FLASH, RPV 2863, REFORMATE, HEIGHT: 15 FT; DIAMETER: 6 FT 6 IN A/N ~~535604~~ 501002	D512				
KNOCK OUT POT, RPV 2864, HYDROGEN GAS, HEIGHT: 6 FT; DIAMETER: 2 FT 6 IN A/N ~~535604~~ 501002	D513				
REACTOR, RPV 2871, NO. 1, HEIGHT: 11 FT 6 IN; DIAMETER: 6 FT 6 IN A/N ~~535604~~ 501002	D514			HAP: (10) [40CFR 63 Subpart UUU, #1, 4-20-2006]	E336.X1, E336.X4
REACTOR, RPV 5115, NO. 4, HEIGHT: 12 FT 7 IN; DIAMETER: 15 FT 6 IN A/N ~~535604~~ 501002	D515	DX8		HAP: (10) [40CFR 63 Subpart UUU, #1, 4-20-2006]	E336.X1, E336.X4
REACTOR, RPV 2873, NO. 2, HEIGHT: 11 FT 6 IN; DIAMETER: 5 FT 6 IN A/N ~~535604~~ 501002	D516			HAP: (10) [40CFR 63 Subpart UUU, #1, 4-20-2006]	E336.X1, E336.X4

REACTOR, RPV 2874, NO. 3, HEIGHT: 11 FT 1 IN; DIAMETER: 7 FT A/N ~~535604~~ 501002	D517			HAP: (10) [40CFR 63 Subpart UUU, #1, 4-20-2006]	E336.X1, E336.X4
SCRUBBER, NO. 3 REFORMER, INTERNAL TO PROCESS PIPING, SODA ASH/WATER SOLUTION INJECTION INTO COOLER, WITH COOLER, REFORMER EFFLUENT COOLER TOP, RPV 2865, AND REFORMER EFFLUENT COOLER BOTTOM, RPV 2866 A/N 501002	DX8	D515 D1439			
KNOCK OUT POT, RPV 2876, HEIGHT: 8 FT; DIAMETER: 2 FT A/N ~~535604~~ 501002	D518				
POT, STRIPPER REBOILER CONDENSATE, RPV 5110, HEIGHT: 3 FT; DIAMETER: 1 FT 8 IN A/N ~~535604~~ 501002	D519				
FILTER, RPV 5754, FUEL GAS, HEIGHT: 10 FT; DIAMETER: 1 FT 5 IN A/N ~~535604~~ 501002	D520				
KNOCK OUT POT, VAPOR RECOVERY, RPV 2891, HEIGHT: 12 FT; DIAMETER: 6 FT A/N ~~535604~~ 501002	D521				
DRUM, RPV 5108, FRACTIONATOR REBOILER CONDENSATE, HEIGHT: 2FT 2 IN; DIAMETER: 1 FT 10 IN A/N ~~535604~~ 501002	D522				
COMPRESSOR, RW 0005-087.06, RECYCLE GAS, CENTRIFUGAL A/N ~~535604~~ 501002	D523				

RESERVOIR, LUBE OIL, FOR COMPRESSOR RW 0005-087.06, NITROGEN PURGE, LENGTH: 6 FT 11.5 IN; HEIGHT: 3 FT; WIDTH: 8 FT 11.5 IN A/N 501002	DX9	D1313 D1314 D2807			E74.2
TANK, HOLDING, NO. 930, SODA ASH, 300 BBL; DIAMETER: 13 FT 6 IN; HEIGHT: 12 FT A/N ~~535604~~ 501002	D525	D1313 D1314 D1656 D2807			
TANK, HOLDING, NO. 931, UDEX FEED, 1570 BBL; DIAMETER: 25 FT; HEIGHT: 18 FT A/N ~~535604~~ 501002	D526	D1313 D1314 D1656 D2807			
TANK, HOLDING, NO. 932, PLANT SOLVENT, 1000 BBL, DIAMETER: 20 FT: HEIGHT: 18 FT A/N ~~535604~~ 501002	D527	D1313 D1314 D1656 D2807			
TANK, HOLDING, NO. 934, WET SOLVENT, 300 BBL; DIAMETER: 12 FT 3 IN; HEIGHT: 12 FT A/N ~~535604~~ 501002	D528	D1313 D1314 D1656 D2807			
SUMP, CONCRETE SOLVENT, WITH METAL COVER, WIDTH: 6 FT; DEPTH: 8 FT; LENGTH: 6 FT A/N ~~535604~~ 501002	D529				
ADSORBER, DRIER, SECONDARY EAST, RPV 2981, HEIGHT: 10 FT 6 IN; DIAMETER: 3 FT 6 IN A/N ~~535604~~ 501002	D530				
ADSORBER, DRIER, SECONDARY WEST, RPV 2982, HEIGHT: 10 FT 6 IN; DIAMETER: 3 FT 6 IN A/N ~~535604~~ 501002	D531				
FUGITIVE EMISSIONS, MISCELLANEOUS A/N ~~535604~~ 501002	D2491			HAP: (10) [40CFR 63 Subpart CC, #5A, 6-23-2003]	H23.3
Process 21: AIR POLLUTION CONTROL PROCESS					

System 4: REFINERY VAPOR RECOVERY SYSTEM					S18.6, S31.6, S56.1
COMPRESSOR, TWO STAGE, NO. 5, RW 7078.03 A/N ~~506084~~ 501005	D1313	DX1 DX9 D80 D525 D526 D527 D528 D847 D848 D875 D1067 D1069 D1072 D1073 D1074 D1075 D1078 D1079 D1084 D1085 D1089 D1092 D1093 D1098 D1103 D1106 D1111 D1120 D1139 D1141 D2907 D2908			E73.5

COMPRESSOR, TWO STAGE, NO. 6, RW 26087.32 A/N ~~506084~~ 501005	D1314	DX1 DX9 D80 D525 D526 D527 D528 D847 D848 D875 D1067 D1069 D1072 D1073 D1074 D1075 D1078 D1079 D1084 D1085 D1089 D1092 D1093 D1098 D1103 D1106 D1111 D1120 D1139 D1141 D2907 D2908			E73.5

COMPRESSOR, TWO STAGE, NO. 8, DUAL SEALS WITH BARRIER FLUID SYSTEM, RW-0059-087.32, 140000 CU. FT./HR A/N ~~506084~~ 501005	D2807	DX1 DX9 D80 D525 D526 D527 D528 D847 D848 D875 D1067 D1069 D1072 D1073 D1074 D1075 D1078 D1079 D1084 D1085 D1089 D1092 D1093 D1098 D1103 D1106 D1111 D1120 D1139 D1141 D2907 D2908			E73.5 H23.33
DRUM, KNOCK OUT, VERTICAL, SFIA VAPOR RECOVERY WEST; RW-6968-289.02, HEIGHT: 16 FT; DIAMETER: 7 FT A/N ~~506084~~ 501005	D2808				
KNOCK OUT POT, BLOWDOWN, WEST, RPV 1067, LENGTH: 6 FT; DIAMETER: 2 FT A/N ~~506084~~ 501005	D1315				
VESSEL SEPARATOR, STEAM-OIL, RPV 1069, HEIGHT: 8 FT; DIAMETER: 4 FT A/N ~~506084~~ 501005	D1316	D1067			
KNOCK OUT POT, FIELD LOCATED WEST HEADER, RPV 2089, LENGTH: 10 FT; DIAMETER: 4 FT A/N ~~506084~~ 501005	D1319				

KNOCK OUT POT, BLOWCASE FOR RPV 1244, RPV 2699, LENGTH: 10 FT 5 IN; DIAMETER: 1 FT 4 IN A/N ~~506084~~ 501005	D1320				
SCRUBBER, RPV 1011, WEST WET GAS, HEIGHT: 6 FT 10 IN; DIAMETER: 5 FT A/N ~~506084~~ 501005	D1321				
SCRUBBER, RPV 1137, EAST WET GAS, HEIGHT: 6 FT 10 IN; DIAMETER: 5 FT A/N ~~506084~~ 501005	D1322				
SCRUBBER, RPV 1055, DRY GAS, HEIGHT: 6 FT 10 IN; DIAMETER: 5 FT A/N ~~506084~~ 501005	D1323				
SCRUBBER, CAUSTIC, RPV-1247, HEIGHT: 42 FT; DIAMETER: 6 FT A/N ~~506084~~ 501005	D1324				
KNOCK OUT POT, VAPOR RECOVERY, RPV 3268, HEIGHT: 7 FT; DIAMETER: 4 FT A/N ~~506084~~ 501005	D1325			BENZENE: (10) [40CFR 61 Subpart FF_02, 12-4-2003]; VOC: 500 PPMV (8) [40CFR 61 Subpart FF, 12-4-2003]	H23.12
SCRUBBER, RW 5794, WEST CAUSTIC, HEIGHT: 57 FT 2 IN; DIAMETER: 4 FT A/N ~~506084~~ 501005	D1659				
SCRUBBER, (SPARE), RW 5795, HEIGHT: 5 FT 6 IN; DIAMETER: 5 FT A/N ~~506084~~ 501005	D1660				
FILTER, COALESCER A/N ~~506084~~ 501005	D2098				

DRUM, KNOCK OUT, VERTICAL EAST HEADER SUCTION, RPV 7028, HEIGHT: 16 FT; DIAMETER: 7 FT A/N ~~506084~~ 501005	D2875				
TANK, 30-DAY OIL, RW-7035-289.02, HEIGHT: 5 FT; DIAMETER: 1 FT 11 IN A/N ~~506084~~ 501005	D2876				
FUGITIVE EMISSIONS, MISCELLANEOUS A/N ~~506084~~ 501005	D2545			HAP: (10) [40CFR 63 Subpart CC, #5A, 6-23-2003]	H23.3
Process 21: AIR POLLUTION CONTROL PROCESS					
System 11: NORTH AREA FLARE GAS RECOVERY SYSTEM					S15.40, S15.41, S31.10, S58.1
COMPRESSOR, THREE STAGE, FGR NO 2, RW 0061-087.32, DUAL SEALS WITH BARRIER FLUID SYSTEM, 150000 CU.FT./HR A/N ~~484944~~ 501006	D2800				E73.4, H23.33
KNOCK OUT POT, FGR COMPRESSOR NO 2 DISCHARGE, RW 6999-289.02, HEIGHT: 18 FT ; DIAMETER: 4 FT 6 IN A/N ~~484944~~ 501006	D2801				
VESSEL, AUTOPUMP, RW-6901-289.09, HEIGHT: 3 FT 11 IN; DIAMETER: 1 FT A/N: ~~484944~~ 501006	D2874				
TANK, 30-DAY OIL, RW-7036-289.02, COMMON TO NORTH AND SOUTH AREA FGRS, HEIGHT: 5 FT ; DIAMETER: 2 FT 5 IN A/N: ~~484943~~ 501006	D2877				
FUGITIVE EMISSIONS, MISCELLANEOUS A/N: ~~484944~~ 501006	D2802				H23.3

BACKGROUND

BP West Coast Products LLC (BP) has submitted several applications seeking amendment of the permits for Catalytic Reformer Units Nos. 1, 2, and 3, of the permits for systems receiving vent gases from the catalytic reformer units during routine operation, and of the permits for equipment used to control vent gases from catalytic reformer units during periods of catalyst regeneration. The equipment is operating at the BP Carson Refinery under the Facility ID 131003. Catalytic Reformer Unit Nos. 1, 2, and 3 are permitted under Process 6, Systems 1, 2, and 3 in the facility permit. During normal operation of Catalytic Reformer Unit Nos. 1 and 2, sour gases are controlled by amine contactors located within these systems as required by permit condition S15.6. Vent gases from compressors and lube oil reservoirs serving the catalytic reformer units are directed to the Refinery Vapor Recovery System permitted under Process 21, System 4, and to the North Area Flare Gas Recovery System (NAFGRS) permitted under Process 21, System 11. During periods when the reformer catalyst is regenerated, vent gases from reformer reactors are controlled by reformer heaters (D532, D535, and D1439) permitted under Process 6, System 4. The applications included in this evalution are listed and described in the table below. The applications were submitted to revise the facility permit, to reflect actual operation in the field. Thus, the applications do not involve new construction or modification of existing equipment. Several applications were submitted during the Title V permit "clean-up" process, a period prior to the issuance of the initial Title V permit, during which the facility permit was updated to reflect actual operation in the field. Other applications were submitted to amend the permit to show how pollutants from catalytic reformer units are controlled during periods of catalyst regeneration, as required under Refinery MACT II standards promulgated under 40 CFR 63 Subpart UUU. The District issued the initial Title V permit to the BP Carson Refinery on September 1, 2009.

The applications included in this evaluation and the specific permit amendments sought by BP are described in the table below.

Table of Permit Amendment Applications

Equipment	Application Nos.	Permit Change
Catalytic Reformer Unit No. 1 (Process 6, System 1)	501003 453135 429511	A/N 501003 was submitted to amend the facility permit to show existing connections from equipment in Catalytic Refomer Unit No. 1, to the Refinery Vapor Recovery System (Process 21, System 4) and to the North Area Flare Gas Recovery System (Process 21, System 11). Equimnent venting to these vapor recovery systems include a centrifugal compressor, reciprocating compressors and a lube oil reservoir. A/N 453135 was submitted to amend the facility permit to show how vent gases from Catalytic Reformer Unit No. 1 are controlled during periods of catalyst regeneration, as required under 40 CFR 63 Subpart UUU. These are existing control measures, not currently shown in the permit, and thus don't involve

		equipment modification or new construction. This application was rejected by the District, as it was deemed to be a duplicate for A/N 429511 (described below). The permit changes under A/N 453135 are implemented under A/N 501003. A/N 429511 was submitted to amend the facility permit to list existing equipment in Catalytic Reformer Unit No. 1. These include Fuel Gas Filter (RPV-5653-289.02) and the Reformer Recycle Knock Out Pot (RPV-2756). Knock Out Pot (RPV 2756) already exists in the facility permit program, as Device D450 (currently inactive). The District will re-activate this device ID. This application will be cancelled and the permit change will be implemented under A/N 501003.
Catalytic Reformer Unit No. 2 (Process 6, System 2)	501004 421706	A/N 501004 was submitted to amend the facility permit to show existing connections from equipment in Catalytic Reformer Unit No. 2, to the Refinery Vapor Recovery System (Process 21, System 4) and to the North Area Flare Gas Recovery System (Process 21, System 11). The equimnent venting to these vapor recovery systems include a centrifugal compressor and reciprocating compressors. A/N 421706 was submitted for amendment of the facility permit to list existing equipment in Catalytic Reformer Unit No. 2. These include the Desulfurizer DEA Knockout Pot (RPV 3107), Reformer Recycle Knockout Pot (RPV 3106), No. 2 Fuel Gas Filter (RPV-5756), Sulfur Trap (RPV 5107), and Chlorine Injection Pot (RPV-6257). Knock Out Pots (RPV 3106 and RPV 3107) already exist in the facility permit program as Devices D466 and D467 (both currently inactive). The District plans to re-activate these device IDs. This application was submitted by BP in response to Notice to Comply (NTC) No. C61532, which requires BP to apply for a Permit to Operate for RPV 3107. Further, under the same application BP requested that the facility permit be amend to show how vent streams from Catalytic Reformer Unit No. 2 are controlled during periods of regeneration of reformer unit catalyst, as required under 40 CFR 63 Subpart UUU. These are existing control measures, not currently listed in the permit, and thus don't involve new construction of equipment modification. This application will be cancelled and the permit change will be implemented under A/N 501004.
Catalytic Reformer Unit No. 3 (Process 6, System 3)	501002 453159 435119	A/N 501002 was submitted to amend the facility permit to show an existing connection from equipment in Catalytic Reformer Unit No. 3, to the Refinery Vapor Recovery System (Process 21, System 4). The equimnent venting to the vapor recovery system is a lube oil reservoir. A/N 453159 was submitted to amend the facility permit to show how vent streams from Catalytic Reformer Unit No. 3 are controlled during periods of catalyst regeneration, as required under 40 CFR 63 Subpart UUU. These are existing control measures, not currently listed in the permit, and thus don't involve new construction or equipment modification. This application will be cancelled and the permit change will be implemented under A/N 501002. A/N 435119 was submitted for an Administrative Change of the permit for

		Catalytic Reformer Unit No. 3. Under this application, BP sought to make the following two changes: 1) eliminate device D502 from the permit as this equipment was demolished, 2) amend the description of device D509 to "No. 3 Reformer Fractionator Deisopentanizer." Both of these permit changes have already been implemented in the BP Title V permit. Therefore, A/N 435119 will be cancelled.
No. 1 Reformer Heater, No. 14 (D532)	453163	A/N 453163 was submitted to amend the permit for No. 1 Reformer Heater (D532) to show that this equipment is used as a control device, treating vent gases from Catalytic Reformer Unit No. 1 during periods of catalyst regeneration.
No. 2 Reformer Heater, No. 15 (D535)	453164	A/N 453164 was submitted to amend the permit for No. 2 Reformer Heater (D535) to show that this equipment is used as a control device, treating vent gases from Catalytic Reformer Unit No. 2 during periods of catalyst regeneration.
No. 3 Reformer Heater, No. 16 (D1439)	453165	A/N 453165 was submitted to amend the permit for No. 3 Reformer Heater (D532) to show that this equipment is used as a control device, treating vent gases from Catalytic Reformer Unit No. 3 during periods of catalyst regeneration.
Refinery Vapor Recovery System (Process 21, System 4)	501005	A/N 501005 was submitted to amend the permit of the Refinery Vapor Recovery System (Process 21, System 4) to show existing connections to equipment (lube oil reservoirs and reciprocating compressors) in the Catalytic Reformer Units.
North Area Flare Gas Recovery System (Process 21, System 11)	501006	A/N 501006 was submitted to amend the permit of the North Area Flare Gas Recovery System (Process 21, System 11) to show existing connections to equipment (centrifugal compressors) in the Catalytic Reformer Units.

The permit history of the subject equipment is described in the table below.

Permit History

Application No./ Equipment	Process No.	System No.	Previous P/O	Date	Permit History
A/N 501003 Catalytic Reforming Unit No. 1	6	1	504559/PC F88730/460577 F50798/396034 286499/PC P06161/A2289 27922/15224	10/5/11 4/4/07 3/28/02 3/31/94 11/27/64 11/28/56	A PC was issued on October 5, 2011, under A/N 504559, for modification of Catalytic Reforming Unit No. 1. The modification planned was the connection of a lube oil reservoir (D2907), serving a centrifugal compressor in this system, to the Refinery Vapor Recovery System (Process 21, System 4). Catalytic Reformer Unit No. 1 is currenty permitted under Permit No. F88730 (A/N 460577), issued on April 4, 2007. The modification processed under this application was the conversion from Diethanolamine (DEA) to Methyldiethanolamine (MDEA), used in sulfur

				recovery. Previously, the equipment was permitted under Permit No. F50798 (A/N 396034), issued on March 28, 2002. This application involved Change of Ownership from ARCO Products Co. to BP West Coast Products LLC. Previously, a PC was issued on March 31, 1994 for modification of this equipment, under A/N 286499. The equipment modification was part of the CARB Clean Fuel Project, to enable the facility to meet the low sulfur limit of reformulated gasoline. Previously, the equipment was permitted under Permit No. P06161 (A/N A22893), issued on November 27, 1964. Under this application, the equipment was modified by replacement of the Hydrogenation Stripper Bottoms Cooler. Previously, the equipment was permitted under Permit No. 27922 (A/N 15224), issued on November 28, 1956.
A/N 501004 Catalytic Reforming Unit No. 2	6	2	504560/PC 10/5/11 G3211/498090 6/2/09 F88731/460578 4/4/07 F72760/435118 12/30/04 F50179/395341 3/14/02 M24890/C23019 6/30/82 P34187/A54299 8/18/69	A PC was issued on October 5, 2011, under A/N 504560, for modification of Catalytic Reforming Unit No. 2. The modification planned was the connection of a lube oil reservoir (D2908), serving a centrigual compressor in this system, to the Refinery Vapor Recovery System (Process 21, System 4). Catalytic Reformer Unit No. 2 is currenty permitted under Permit No. G3211 (A/N 498090), issued on June 2, 2009. This application involved an Administrative Change to the permit, consisting of addition of equipment ID numbers to two filters, Device IDs D472 and D473. Previously, the equipment was permitted under Permit No. F88731 (A/N 460578), issued on April 4, 2007. The modification processed under this application was the conversion from Diethanolamine (DEA) to Methyldiethanolamine (MDEA), used in sulfur recovery. Previously, the equipment was permitted under Permit No. F72760 (A/N 435118), issued on

				December 30, 2004. This application involved an Administrative Change to the permit; consisting of amendment of the description of Devices IDs D463 and D464 and removal of demolished Device D484. Previously, the equipment was permitted under Permit No. F50179 (A/N 395341), issued on March 14, 2002. This application involved Change of Ownership from ARCO Products Co. to BP West Coast Products LLC. Previously, the equipment was permitted under Permit No. M24890 (A/N C23019), issued on June 30, 1982. The modifications processed under this application included addition of heat exchangers and an increase in motor horsepower for a feed pump. Previously, the equipment was permitted under Permit No. P34187 (A/N A54299), issued on August 18, 1969.
A/N 501002 Catalytic Reformer Unit No. 3	6	3	535604/PC 6/21/12 395834/PC 4/23/02 376189/PC 7/11/01 305940/PC 9/28/95 276930/PC 10/27/93 M58838/140023 9/16/87 M19307/C19175 3/30/82	A PC was issued for Catalytic Reformer Unit No. 3, under A/N 535604, on June 21, 2012. This application involved modification of the unit to allow Fractionation Tower (D509) to operate as a Dehexanizer in addition to its operation as a Deisopentanizer. A PC was issued for Catalytic Reformer Unit No. 3, under A/N 395834, on April 23, 2002. This application involved Change of Ownership from ARCO Products Co. to BP West Coast Products LLC. A PC was issued for Catalytic Reformer Unit No. 3, under A/N 376189, on July 11, 2001. This modification was designated "MTBE Phase Out/CARB Phase III Gasoline Project." Under this application an existing Toluene Fractionator was converted to a Deisopenanizer and this column and its overhead accumulator were re-rated to a higher pressure rating. The project also involved other equipment, not listed in the facility permit. Previously, a PC was issued for Catalytic Reformer Unit No. 3, under A/N 305940, on September 28,

				1995. This application involved addition of equipment (25 HP pump, with vent to vapor recovery) to the permit for Catalytic Refomer Unit No. 3, based on the latest Clean Fuels Project. Previously, a PC was granted for Catalytic Reformer Unit No. 3 under A/N 276930, on October 27, 1993. Under this application the unit was modified by addition of two coolers (fractionators bottoms and fractionators overhead). Previously, this equipment, which was designated "Benzene-Toluene-Xylene Unit," was permitted under Permit No. M58838 (A/N 140023) issued on September 16, 1987. Previous to this, the equipment was permitted under Permit No. M19307 (A/N C19175), issued on March 30, 1982. The modification processed under this application was replacement of two tower bottoms pumps and their common spare, with motor driven centrifugal pumps.
A/N 453163 Heater D532	6	4	F50914/395838 3/29/02 383623/PC 5/3/01 D98179/303431 4/22/96 273403/PC 2/1/93 027988/15223 12/11/56	The No. 1 Reformer Heater (D532) is currently permitted under Permit No. F50914 (A/N 395838), issued on March 29, 2002. This application involved Change of Ownership from ARCO Products Co. to BP West Coast Products LLC. Previously, a PC was issued for this equipment on May 3, 2001, under A/N 383623. Under this application the heater was modified by replacement of burners with low-NOx burners. Previously, this equipment was permitted under Permit No. D98179 (A/N 303431), issued on April 22, 1996. Previously, a PC was issued for this equipment on February 1, 1993, under A/N 273403. Previously, this equipment was operated under Permit No. 027988 (A/N 15223), issued on December 11, 1956.
A/N 453164 Heater D535	6	4	F50296/395971 3/15/02 F45165/384733 10/11/01 D89202/303435 4/22/96 273524 /PC 1/29/93 P22271/A35728 10/3/67	The No. 2 Reformer Heater (D535) is currently permitted under Permit No. F50296 (A/N 395971), issued on March 15, 2002. This application involved Change of Ownership from ARCO Products Co. to BP West Coast Products LLC.

				Previously, this equipment was permitted under Permit No. F45165 (A/N 384733), issued on October 11, 2001. This application involved addition of permit conditions stating requirements under 40 CFR 60 Subpart J, for the heater. Previously, this equipment was permitted under Permit No. D89202 (A/N 303435), issued on April 22, 1996. This application involved amending the permitted firing capacity of the heater to 310 MMBtu/hr. Under A/N 273524 a PC was issued for modification of this heater on January 29, 1993. This modification involved replacement of the burners with low NOx burners. Previously, this equipment was operated under Permit No. P22271 (A/N A35728), issued on October 3, 1967.
A/N 453165 Heater D1439	6	4	F50910/395649 3/29/02 273402 /PC 1/22/93 M20017/C24073 8/27/81	The No. 3 Reformer Heater (D1439) is currently permitted under Permit No. F50910 (A/N 395649), issued on March 29, 2002. This application involved Change of Ownership from ARCO Products Co. to BP West Coast Products LLC. Under A/N 273402 a PC was issued for modification of this heater on January 22, 1993. This modification involved replacement of the burners with low NOx burners. Previously, this equipment was operated under Permit No. M20017 (A/N C24073), issued on August 27, 1981.
A/N 501005 Refinery Vapor Recovery System	21	4	506084/PC 10/5/11 408310/PC 1/21/09 484940/PC 9/30/08 433624/PC 2/21/08 467509/PC 12/4/07 454560/PC 3/21/07 434528/PC 7/26/05 F53265/395987 6/28/02 F00838/307021 7/16/96 D53632/258211 5/26/92 M51464/140222 7/29/86 M41666/112415 12/10/84 M39980/C38053 8/22/84	A PC was issued on October 5, 2011, under A/N 506084, for modification of the Refinery Vapor Recovery System. The modification planned was the connection of vents from lube oil reservoirs, serving centrifugal compressors in Catalytic Reforming Unit Nos. 1 and 2, to the Refinery Vapor Recovery System. A PC was issued for modification of the Refinery Vapor Recovery System, under A/N 408310, on January 21, 2009. Under this application the permit was amended to show venting of fixed roof storage tanks (Device IDs: D1072, D1078, D1079,

			P55074/A76080 1/17/74	D1089, D1092, D1093, D1098, D1103, D1111, D1120, D1139, and D1141) to the Refinery Vapor Recovery System. These were existing connections to the vapor recovery system (i.e. the permit was amended to reflect actual operation in the field). Under A/N 484940 a PC was issued on September 30, 2008 for modification of the Refinery Vapor Recovery System. The modification involved venting of compressor PRVs to the South Area Flare. Under A/N 433624, the Refinery Vapor Recovery System was issued a PC on February 21, 2008. Under this application the permit was amended to show that this system receives vent gas from Tank No. 614. Under A/N 467509, the equipment was issued a PC on December 4, 2007. This application involved venting of Tank No. 773 to the vapor recovery system. The Refinery Vapor Recovery System was issued a PC under A/N 454560 on March 21, 2007. Under this application the vapor recovery system was enhanced by replacement of one of its compressors. This equipment was previously issued a PC, under A/N 434528, issued on July 26, 2005. Previously, the equipment was permitted under Permit No. F53265 (A/N 395987) issued on June 28, 2002. This application involved Change of Ownership from ARCO Products Co. to BP West Coast Products LLC. Previous to this, the equipment was permitted under Permit No. F00838 (A/N 307021), issued on July 16, 1996. Under this application the vapor recovery system was modified to better handle liquid buildup, by addition of a coalescer filter and by routing a suction line through vessel RPV 1182. Previous to this, the equipment was permitted

					under Permit No. D53632 (A/N 258211), issued on May 26, 1992. Under this application the vapor recovery system was modified to receive vent gas from storage tanks and drums. Previous to this, the equipment was permitted under Permit No. M51464 (A/N 140222), issued on July 29, 1986. Previous to this, the equipment was permitted under Permit No. M41666 (A/N 112415), issued on December 10, 1984. Previous to this, the equipment was permitted under Permit No. M39980 (A/N C38053), issued on August 22, 1984. Previous to this, the equipment was permitted under Permit No. P55074 (A/N A76080), issued on January 17, 1974.
A/N 501006 North Area Flare Gas Recovery System	21	11	484944/PC 9/30/08 458610/PC 3/21/07		A PC was issued for the North Area Flare Gas Recovery System, under A/N 484944, on September 30, 2008. Modifications processed under this application include addition of an autopump and an oil tank. The autopump serves the water seal tank, transferserring water out of the outer rim of the tank after flare events. The oil tank stores lube oil for the compressors in this system. Previously, a PC was issued for this equipment, under A/N 458610, on March 21, 2007. Under this PC the North Area Flare Gas Recovery System was constructed and first operated.

There are no outstanding Notices of Violation (NOV) associated with the subject equipment. The submittal of A/N 421706 met the requirements of Notice to Comply (NTC) No. C61532, which required submittal of an application for a Permit to Operate for vessel RPV 3107 - a knock out pot serving a compressor in Catalytic Reformer Unit No. 2.

PROCESS DESCRIPTION

The table below contains a brief description of the processes for which permits are sought. This section also more fully describes the permit changes included in this evaluation.

Process Description

Equipment	Process Description
Catalytic Reformer Unit No. 1	The Catalytic Reformer Units treat low octane naphtha from the Crude, Coker and Hydrocracker Units. They remove sulfur in the presence of a nickel/moly catalyst, producing H2S. The treated naphtha is further reacted in the presence of hydrogen and platinum/rhenium catalyst, to produce high octane reformate and hydrogen. Thus, the process converts low octane naphtha into high octane reformate. BP now seeks, under A/N 429511, addition of two devices to this system. The Reformer Recycle Knockout Pot (RPV 2756), which has a diameter of 5 feet and height of 8 feet, already exists in the facility permit program as device D450 (inactive). This device will be re-activated. No information is found regarding why it was inactivated. It may have been inactivated because it was thought to be exempt from permitting under condition F25.1. Fuel Gas Filter (RPV-5653-289.02), which has a diameter of 1 foot 10 inches and height of 9 feet 4 inches, is an existing device to be added to the facility permit. BP indicates that this equipment was constructed at the site in 1993. BP now seeks, under A/N 435135, to amend the facility permit to show control of vent streams from catalytic reformer unit during catalyst regeneration. The controls are mandated by 40 CFR 63 Subpart UUU. These are existing controls and thus do not represent modification of equipment or any new construction. The permit amendments address control of emissions during catalyst regeneration which includes the following steps: ➢ Initial depressurization/purge: the initial purge stream is sent through the reformer flash tank to either the FCCU Flare System or Hydrocracker Flare System for control of organic HAPs. ➢ Coke burnoff: coke burnoff is accomplished by heating the catalyst and injecting oxygen to burn off coke deposits on the catalyst. ➢ Catalyst rejuvenation: during the oxy-chlorination step (as well as the coke burnoff process) emissions of inorganic HAPs (specifically HCl) are regulated. Inorganic HAPs are controlled by an internal scrubber which treats the vent stream from the final reactor(s) in the reactor series. HCl is controlled by the internal scrubber, through reaction with a soda ash/water solution. The vent stream from the internal scrubber passes through the reformer flash tank and is then incinerated in the flame zone of the reformer heater. ➢ Final purge: no emissions standards apply to this step, which precedes the return of the catalytic reformer unit to normal operation. For Catalytic Reformer Unit No. 1, permit amendments include deletion of Devices D436, D441, D442, and D443 because this equipment has been removed from service. Originally, BP requested that Device D439 be eliminated from the permit, because it has been removed from service. However, since the device is still on-site, it remains in the permit. BP informed the District in an e-mail on October 11, 2011 that "Device D439 has been taken Out Of Service INDEFINITELY. Please indicate in the Permit that D439 is OOS/INACTIVE." In the same e-mail, BP informed the District that "All 4 devices (D436, D441, D442, and D443) have been Demo'ed and Removed from Site – Please remove these devices from the permit." The Catalytic Reformer Unit No. 1 permit is amended to show connection of reactors to the No. 1 Reformer Unit Internal Scrubber, by listing of devices in the "Connected To" column. The No. 1 Reformer Unit Internal Scrubber (new device ID) is connected to Reactor Nos. 4 (D449) and R4B (D457). This scrubber is used only during the coke burnoff and catalyst rejuvenation steps of catalyst regeneration. The scrubber is also connected to the Reformer Flash Tank (D440). The Reformer Flash Tank (D440) is

	vented to flares (FCCU Flare System or Hydrocracker Flare System) during an emergency or during initial catalyst depressurization and purge operation of catalyst regeneration. The Reformer Flash Tank (D440) is vented to the combustion zone of the No. 1 Reformer Heater (D532), during coke burnoff and catalyst rejuvenation steps of catalyst regeneration. Under A/N 504559 a PC was issued for connection of a lube oil reservoir (D2907), which supplies lube oil/seal oil to a reformer recycle gas compressor (D454), to the Refinery Vapor Recovery System. This reservoir, which previously was exempt from permitting under District Rule 219, was added to the facility permit to show its connection to the Refinery Vapor Recovery System. Additional permit amendments are proposed under A/N 501003. These involve amemdment of the facility permit to reflect actual operation in the field and thus do not involve any physical modification of equipment. ➢ The permit for compressor D454 is amended to show that it is a centrifugal compressor, with five stages. Further, this device does not have a Pressure Relief Valve (PRV) vent to the atmosphere and thus it is eliminated from listing under condition S56.1. In the original application submittal, BP requested permitting of an offgas vent stream from this compressor to the Fuel Gas System (Process 10, System 1); however, subsequently it was decided that a process-to-process connection need not be listed in the facility permits. ➢ The permit for compressor D451 is amended to show that it is a centrifugal type which has an offgas vent stream connected to the North Area Flare Gas Recovery System (Process 21, System 11). Further, this device does not have a PRV vent to the atmosphere and thus it is eliminated from listing under condition S56.1. ➢ The reservoir storing lube oil/seal oil used by compressor D451 is listed in the facility permit as new device DX1. Its dimensions are: 8 ft length, 4 ft 6 1/2 in height, and 7 ft width. The reservoir headspace is purged with nitrogen gas and vented to the Refinery Vapor Recovery System. This reservoir stores virgin lube oil as well as recycled lube/seal oil from the compressor. VOCs may collect in this reservoir due to leakage, as internal seals in the compressor wear out over time. The reservoir is also be equipped with a relief valve vented to the atmosphere, in case of catastrophic compressor seal failure. Previously, it was expempt from permitting under District Rule 219, but is now listed in the facility permit to show its connection to the Refinery Vapor Recovery System. ➢ The permits for compressors D434 and D435 are amended to show that they are reciprocating type and that they have seals supplied with nitrogen gas. This seal gas is either vented to the atmosphere or to the Refinery Vapor Recovery System (Process 21, System 4). Normally, when the seal packing is in good condition, there is almost no flow of nitrogen gas. However, when the packing becomes worn, nitrogen gas and VOCs are vented. Under these conditions, BP operations personnel switch this vent from atmospheric release, to the Refinery Vapor Recovery System. New condition E193.X1 requires monitoring of the atmospheric vent, under the schedule stated in Rule 1173 or when the nitrogen gas flow rate indicates wear of seal packing. When a leak is detected and the seal must either be repaired according the schedule under Rule 1173, or the vent must be switched to the Refinery Vapor Recovery System. A further amendment of the permit for compressor D435, is to describe it as handling desulfurizer feed gas and to list it as a spare unit. Per condition S56.1, these compressors have vents (from relief or safety valves) to the atmosphere. ➢ The equipment ID numbers of compressors are updated to match the equipment IDs supplied by BP.
Catalytic	The Catalytic Reformer Units treat low octane naphtha from the Crude, Coker and Hydrocracker Units.

Reformer Unit No. 2	They remove sulfur in the presence of a nickel/moly catalyst, producing H2S. The treated naphtha is further reacted in the presence of hydrogen and platinum/rhenium catalyst, to produce high octane reformate and hydrogen. Thus, the process converts low octane naphtha into high octane reformate. Under A/N 504560 a PC was issued for connection of a lube/seal oil reservoir (D2908), which supplies lube oil/seal oil to a reformer recycle gas compressor (D476), to the Refinery Vapor Recovery System. This reservoir, previously exempt from permitting under District Rule 219, was added to the facility permit to show its connection to the Refinery Vapor Recovery System. BP now seeks, under A/N 421706, addition of five devices to this system. This is existing equipment, currently not listed in the facility permit. The Reformer Recycle Knockout Pot (RPV 3106), which has a diameter of 10 feet and height of 14 feet 4 inches, and the Desulfurizer DEA Knockout Pot (RPV 3107), which has a diameter of 5 feet and height of 8 feet 4 inches, already exist in the facility permit program as devices D466 and D467 (inactive). These devices will be re-activated. No information is found regarding why they were inactivated. The No. 2 Reformer Fuel Gas Filter (RPV-5756), with diameter of 1 foot 10 inches and height of 8 feet 6 inches; the No. 2 Reformer & Desulfurizer Sulfur Trap (RPV-5107), with diameter of 6 feet and height of 12 feet 5 inches; and Chlorine Injection Pot (RPV 6257), with diameter of 2 feet and height of 3 feet, are all existing equipment to be added to the facility permit. According to information submitted by BP, Fuel Gas Filter RPV-5756 was manufactured in 1993, Sulfur Trap RPV 5107 was manufactured in 1986, and Chlorine Injection Pot RPV 6257 was manufactured in 1994. The plot plans submitted for this project, which have revision dates 1997 and 2003, indicate that the subject equipment is existing and thus permitting of the equipment does not involve new emissions of criteria or Toxic Air Contaminant (TAC) pollutants. BP also seeks, under A/N 421706, to amend the facility permit to show control of vent streams from the catalytic reformer unit during catalyst regeneration. These controls, mandated by 40 CFR 63 Subpart UUU, are existing controls and thus do not represent modification of equipment or any new construction. The permit amendments address control of emissions during catalyst regeneration, which includes the following steps: ➢ Initial depressurization/purge: the initial purge stream is sent through the reformer flash tank to either the FCCU Flare System or Hydrocracker Flare System for control of organic HAPs. ➢ Coke burnoff: coke burnoff is accomplished by heating the catalyst and injecting oxygen to burn off coke deposits on the catalyst. ➢ Catalyst rejuvenation: during the oxy-chlorination step (as well as the coke burnoff process) emissions of inorganic HAPs (specifically HCl) are regulated. Inorganic HAPs are controlled by an internal scrubber which treats the vent stream from the final reactor(s) in the reactor series. HCl is controlled by the internal scrubber, through reaction with a soda ash/water solution. The vent stream from the internal scrubber passes through the reformer flash tank and is then incinerated in the flame zone of the reformer heater. ➢ Final purge: no emissions standards apply to this step, which precedes the return of the catalytic reformer unit to normal operation. The permit amendments include showing connection of reactors to the No. 2 Reformer Internal Scrubber, through listing of devices in the "Connected To" column. The No. 2 Reformer Internal Scrubber (new device ID) is connected to Reactor Nos. 3-B (D463) and 3-A (D464). BP indicates that this scrubber is used only during the coke burnoff and catalyst rejuvenation steps of catalyst regeneration. The scrubber is also connected to the Reformer Flash Tank (D474). The Reformer Flash Tank (D474) is vented to flares

	(FCCU Flare System or Hydrocracker Flare System) during an emergency or during initial catalyst depressurization and purge operation of catalyst regeneration. The Reformer Flash Tank (D474) is vented to the combustion zone of the No. 2 Reformer Heater (D535) during the coke burnoff and catalyst rejuvenation steps of catalyst regeneration. Additional amendments are permitted under A/N 501004. These involve amemdment of the facility permit to reflect actual operation in the field and thus do not involve any physical modification of equipment. The permit amendments include: ➢ The permits for compressors D477 and D478 are amended to show that they have seals supplied with nitrogen gas. This seal gas is either vented to the atmosphere or to the Refinery Vapor Recovery System (Process 21, System 4). Normally, when the seal packing is in good condition, there is almost no flow of nitrogen gas. However, when the packing becomes worn, nitrogen gas and VOCs are vented. Under these conditions, BP operations personnel switch the vent from atmospheric release, to the Refinery Vapor Recovery System. New condition E193.X1 requires monitoring of the atmospheric vent, under the schedule stated in Rule 1173, or when nitrogen gas flow rate indicates wear of seal packing. When a leak is detected the seal must either be repaired according to the schedule under Rule 1173, or the vent must be switched to the Refinery Vapor Recovery System. Additional permit amendments include describing compressor D477 as a desulfurizer feed/recycle compressor powered by a turbine, and compressor D478 as a desulfurizer feed/recycle compressor. Per condition S56.1, these compressors have vents (from a relief or safety valve) to the atmosphere. ➢ The permit for compressor D476 is amended to show it has an offgas vent stream connected to the North Area Flare Gas Recovery System (Process 21, System 11). Further, this device does not have a PRV vent to the atmosphere and thus it is eliminated from listing under condition S56.1.
Catalytic Reformer Unit No. 3	The No. 3 Catalytic Reformer Unit processes low sulfur naphthas with hydrogen in the presence of platinum/rhenium catalyst, to produce high octane reformate and hydrogen. Thus, the process produces high octane reformate. A/N 435119 was submitted for an Administrative Revision of the BP Title V permit. Under this application BP sought the removal of device D502 from the permit, as this device has been demolished, and update of the description of device D509 to "No. 3 Reformer Fractionator Deisopentanizer," replacing the description of "Deisopentanizer Column with 50 trays." This updated equipment description is consistent with the description in drawing no. LARC5-SK-1A. These permit changes have already been implemented. BP now seeks, under A/N 453159, to amend the facility permit to show control of vent streams from catalytic reformer unit during catalyst regeneration. These controls, mandated by 40 CFR 63 Subpart UUU, are existing controls and thus do not represent modification of equipment or any new construction. The permit amendments address control of emissions during catalyst regeneration, which includes the following steps: ➢ Initial depressurization/purge: the initial purge stream is sent through the reformer flash tank to either the FCCU Flare System or Hydrocracker Flare System for control of organic HAPs. ➢ Coke burnoff: coke burnoff is accomplished by heating the catalyst and injecting oxygen to burn off coke deposits on the catalyst. ➢ Catalyst rejuvenation: during the oxy-chlorination step (as well as the coke burnoff process) emissions of inorganic HAPs (specifically HCl) are regulated. Inorganic HAPs are controlled by an internal scrubber which treats the vent stream from the final reactor(s) in the reactor series.

	HCl is controlled by the internal scrubber, through reaction with a soda ash/water solution. The vent stream from the internal scrubber passes through the reformer flash tank and is then incinerated in the flame zone of the reformer heater. ➢ Final purge: no emissions standards apply to this step, which precedes the return of the catalytic reformer unit to normal operation. The connection of reactors to the No. 3 Reformer Internal Scrubber is shown, through listing of devices in the "Connected To" column. The No. 3 Reformer Internal Scrubber (new device ID) is connected to Reactor No. 4 (D515). BP indicates that this scrubber is used only during the coke burnoff and catalyst rejuvenation steps of catalyst regeneration. The scrubber is also connected to the Reformer Flash Tank (D512). The Reformer Flash Tank (D512) is vented to flares (FCCU Flare System or Hydrocracker Flare System) during emergency or during initial catalyst depressurization and purge operation of catalyst regeneration. The Reformer Flash Tank (D512) is vent to the No. 3 Reformer Heater (D1439) during the coke burnoff and catalyst rejuvenation steps of catalyst regeneration. Additional permit amendment is proposed under A/N 501002. This involves amemdment of the facility permit to reflect operation in the field and thus does not involve any physical modification of equipment. The permit amendments include: ➢ The reservoir storing lube oil used by compressor D523 is listed in the facility permit as new device DX9. Its dimensions are: 6 ft 11 ½ in length, 3 ft height, and 8 ft 11 ½ in width. Nitrogen is injected into the headspace of the reservoir and is purged, along with VOCs to the Refinery Vapor Recovery System. This reservoir stores virgin lube oil as well as recycled lube/seal oil from the compressor. VOCs may collect in this reservoir due to leakage, as internal seals in the compressor wear out over time. The reservoir is also be equipped with a relief valve vented to the atmosphere, in case of catastrophic compressor seal failure. Previously, it was expempt from permitting under District Rule 219, but is now listed in the facility permit to show its connection to the Refinery Vapor Recovery System.
No. 1 Reformer Heater, No. 014	The No. 1 Reformer Heater, No. 014, functions to heat charge stock, together with makeup hydrogen and desulfurizer recycle gas, to reaction temperature as required by the No. 1 Reformer Unit. It is a refinery gas fired heater, supplied by Alcorn Combustion Company, with a rated heat input of 255 MMBtu/hr. It is equipped with 77 low-NOx burners, supplied by Zeeco (Model No. GLSF-9). NOx emissions from the heater are expected to be limited to 0.042 lbs/MMBtu (stated in a previous District evaluation). The current application was submitted to amend the permit to show that the heater receives vent gas from the No. 1 Reformer Unit during periods of catalyst regeneration. This regeneration vent gas is destroyed by venting into the combustion zone of the heater.
No. 2 Reformer Heater, No. 015	The No. 2 Reformer Heater, No. 015, functions to heat charge stock to reaction temperature as required by the No. 2 Reformer Unit. It is a refinery gas fired heater, supplied by Alcorn Combustion Company, with a rated heat input of 310 MMBtu/hr. It is equipped with 72 low-NOx burners, supplied by John Zink (32 burners - Model No. PSMR-12R; 40 burners – Model No. PSMR-15R). NOx emissions from the heater are expected to be limited to 0.1 lbs/MMBtu (stated in a previous District evaluation). The current application was submitted to amend the permit to show that the heater receives vent gas from the No. 2 Reformer Unit during periods of catalyst regeneration. This regeneration vent gas is destroyed by venting into the combustion zone of the heater.
No. 3 Reformer Heater, No. 016	The No. 3 Reformer Heater, No. 016, functions to heat charge stock to reaction temperature as required by the No. 3 Reformer Unit. It is a refinery gas fired heater, supplied by Alcorn Combustion Company, with a rated heat input of 171 MMBtu/hr. It is equipped with 40 low-NOx burners, supplied by Callidus Technologies (Model No. LE-CSG-4W). NOx emissions from the heater are expected to be limited to 0.044 lbs/MMBtu (stated in a previous District evaluation). The current application was submitted to

	amend the permit to show that the heater receives vent gas from the No. 3 Reformer Unit during periods of catalyst regeneration. This regeneration vent gas is destroyed by venting into the combustion zone of the heater.
Refinery Vapor Recovery System, Process 21, System 4	The Refinery Vapor Recovery System, permitted under Process 21, System 4, includes Compressors No. 5, 6, and 8. The vapor recovery system was enhanced under A/N 454560, to a capacity of 400,000 scfh. This application involved permitting of Compressor No. 8, a 140,000 scfh compressor equipped with dual seals with a barrier fluid system. Recovered vapors are used as a fuel source in the refinery. Recovered gases are compressed, treated in a caustic treatment system (to remove H_2S and organic sulfur compounds), and distributed to equipment requiring a fuel source. It is expected that the refinery vapor control system functions with a control efficiency of 99.9% (i.e. minus losses through fugitive components, 100% of hydrocarbon vapors from tanks vented to the vapor recovery system are captured and processed). The venting of lube oil reservoirs from the Catalytic Reformer Units to the vapor recovery system is expected to result in a recovered gas flow of 200 scfh (100 scfh per reservoir due to nitrogen injection, as reservoirs are operated approximately at constant level). This represents 0.05% of the capacity (400,000 scfh) of the system and therefore represents an insignificant burden on the system. The capacity of this system was increased from 355,000 scfh to 400,000 scfh, under A/N 454560 (PC issued on 3/21/2007).
North Area Flare Gas Recovery System, Process 21, System 11	The North Area Flare Gas Recovery System was constructed as required by the March 2005 Settlement Agreement between BP and the District and meets the requirements of District Rule 1118. It serves to recover gas from the flaring system by pulling vent gas from a common header, pressurizing it, eliminating condensable material and routing it to the refinery fuel gas system. It includes a 150,000 SCFH compressor - designated FGR No. 2 - which is a three stage compressor with dual seals and a barrier fluid system; a compressor discharge knockout pot; heat exchangers; an autopump (serving the water seal tank by transferring used water from the outer rim of tank after a flaring event); and a 30-day lubrication oil tank (common to both the North and South Area Flare Gas Recovery Systems) with a Pressure Relief Valve (PRV) tie-in to the the Coker Flare. Under this evaluation, the permits for two centrifugal compressors D451 and D476, serving Catalytic Reformer Units 1 and 2, and the permit for the North Area Flare Gas Recovery System are amended to show that offgases from the compressors are vented to this vapor recovery system.

Attachment #1 to this evaluation is a report for a field inspection of the compressors serving the Catalyitic Reformer Units, conducted on September 14, 2011. Attachment #2 is an e-mail stream between the District and BP addressing various questions regarding updating the permits for the Catalytic Refomer Units. Attachment #4 in A/Ns 501003 and 501004 contains previous District permits, design specifications, or process diagrams for equipment in Catalytic Reformer Unit Nos. 1 and 2 to be added to the permit (i.e. existing equipment not currently listed in the permit).

EMISSIONS

The permit update, which is the subject of this set of applications, does not involve construction of new equipment or modification of existing equipment and thus will not result in an increase in criteria and Toxic Air Contaminant (TAC) emissions. The potential-to-emit of Volatile Organic Coumpounds (VOC) from the systems to be repermitted (Catalytic

Reformer Units 1, 2, 3, the Refinery Vapor Recovery System, and the North Area Flare Gas Recovery System) is based on fugitive emissions from components in VOC service. These have been quantified under previous applications and will not change as a result of this permit action.

This permit action is limited to

- listing of equipment already in operation in the field (see information in Attachment #4 of A/Ns 501003 and 501004 which establishes that this is not new equipment, but has been in operation at the site and has thus been included in previous fugitive component counts),
- updating the permit to show existing connections between compressors (seals) or lube oil reservoirs and vapor recovery/control systems. It is believed that the reciprocating compressor seals (with nitrogen purged packing venting to vapor recovery) were implemented at this site in the early 1990s.
- and updating the permit to show how emissions are controlled during periods of catalyst regeneration, as required under 40 CFR 63 Subpart UUU. These requirements which were first promgulated on April 11, 2002. Thus, the required vent controls during catalyst regeneration are not new, but have been established for many years.

The potential-to-emit of VOC from the subject systems is calculated in tables below. TAC emissions are not quantified as the subject permit action has not potential to increase TAC emissions (note: as verified by source testing (see results below) the concentration of HCl in the reformer regeneration vent gas is insignificant).

In previous evaluations (A/Ns 504559, 504560, and 506084) VOC emissions from the lube oil reservoirs, serving the centrifugal compressors in the Catalytic Reformer Units, were determined to be negligible. The sample calculation, performed using the EPA Tanks 4.09d program, evaluated emissions from a constant-level fixed roof storage tank storing lube oil. It made use of the physical properties of Distillate Fuel Oil No. 2, which are expected to be similar to those of lube oil. The calculation included a profile of potential TACs found in the lube oil. Uncontrolled and controlled emissions of VOC from a lube oil tank were determined to be 0.77 lbs VOC/yr and 0.00077 lbs/yr, respectively. Controlled emissions rates of Benzene and Toluene were determined to be 0.00 lbs/yr. Thus, VOC emissions from the lube oil reservoirs, are negligible in comparison to potential VOC emissions from fugitive components the Catalytic Reformer Units.

The tables below show the potential-to-emit of VOC from the Catalytic Reformer Units, the Refinery Vapor Recovery Unit, and the North Area Flare Gas Recovery System. These calculations utilize the most up-to-date fugitive component counts and emissions factors.

Process 6, System 1, Potential-to-Emit from Fugitive Components, Calculated under A/N 504559

Component Type		Service	Number of Components	Emission Factor (lb/yr/ component)	Annual VOC Emissions (lbs/yr)
Valves	Sealed Bellows	Gas/Vapor and Light Liquid	86	0	0
	AQMD Approved I&M Program	Fuel & Natural Gas	0	4.55	0
		Gas Vapor	1091	4.55	4,964.05
		Light Liquid	919	4.55	4,181.45
		Heavy Liquid	0	4.55	0
Pumps	Sealless Type	Light Liquid	0	0	0
	Double Mechanical Seals or Equivalent	Light Liquid	13	46.83	608.79
	Single Mechanical Seal	Heavy Liquid	0	46.83	0
Compressor		Gas/Vapor	6	9.09	54.54
Flanges		All	8268	6.99	57,793.32
Pressure Relief Valves		All	36	0	0
Process Drains		All	86	9.09	781.74
			Total lbs/year:		**68,383.89**
			Total lbs/day – 30 day avg.:		**190**
			Total lbs/day:		**187.35**
			Total lbs/hr:		**7.81**

Emission factors are derived using CAPCOA Revised 1995 EPA Correlation Equations and Factors for Refineries and Marketing Terminals, with a 500 ppmv screening value.

Process 6, System 2, Potential-to-Emit from Fugitive Components, Calculated under A/N 504560

Component Type		Service	Number of Components	Emission Factor (lb/yr/ component)	Annual VOC Emissions (lbs/yr)
Valves	Sealed Bellows	Gas/Vapor and Light Liquid	21	0	0
	AQMD Approved I&M Program	Fuel & Natural Gas	0	4.55	0
		Gas Vapor	1282	4.55	5,833.10
		Light Liquid	552	4.55	2,511.60
		Heavy Liquid	0	4.55	0
Pumps	Sealless Type	Light Liquid	0	0	0
	Double Mechanical Seals or Equivalent	Light Liquid	10	46.83	468.30
	Single Mechanical Seal	Heavy Liquid	0	46.83	0
Compressor		Gas/Vapor	4	9.09	36.36
Flanges		All	9629	6.99	67,306.71
Pressure Relief Valves		All	21	0	0
Process Drains		All	102	9.09	927.18
			Total lbs/year:		**77,083.25**
			Total lbs/day – 30 day avg.:		**214**
			Total lbs/day:		**211.19**
			Total lbs/hr:		**8.80**

Emission factors are derived using CAPCOA Revised 1995 EPA Correlation Equations and Factors for Refineries and Marketing Terminals, with a 500 ppmv screening value.

Process 6, System 3, Potential-to-Emit from Fugitive Components, Current Component Count

Component Type		Service	Number of Components	Emission Factor (lb/yr/ component)	Annual VOC Emissions (lbs/yr)
Valves	Sealed Bellows	Gas/Vapor and Light Liquid	151	0	0
	AQMD Approved I&M Program	Fuel & Natural Gas	0	4.55	0
		Gas Vapor	472	4.55	2,147.60
		Light Liquid	929	4.55	4,226.95
		Heavy Liquid	0	4.55	0
Pumps	Sealless Type	Light Liquid	0	0	0
	Double Mechanical Seals or Equivalent	Light Liquid	20	46.83	936.60
	Single Mechanical Seal	Heavy Liquid	0	46.83	0
Compressor		Gas/Vapor	0	9.09	0
Flanges		All	5563	6.99	38,885.37
Pressure Relief Valves		All	30	0	0
Process Drains		All	82	9.09	745.38
			Total lbs/year:		**46,941.90**
			Total lbs/day – 30 day avg.:		**130**
			Total lbs/day:		**128.61**
			Total lbs/hr:		**5.36**

Emission factors are derived using CAPCOA Revised 1995 EPA Correlation Equations and Factors for Refineries and Marketing Terminals, with a 500 ppmv screening value.

The potential-to-emit of VOC emissions from Process 6, System 3, stated under the most recent application (A/N 535604) was 138 lbs/day. This fugitive emissions rate was quantified under A/N 376189, which was processed for PC on July 11, 2001. The final component counts after the modification processed under this application are:

Fugitive Component Counts for Process 6, System 3 under A/N 376189

Component Type	Service	Number of Components	Emissions Factor (lbs/yr)	Emissions (lbs/yr)
Valves (Sealed Bellows)	Gas/Vapor and Light Liquid	134	0	0
Valves (AQMD Approved I&M Program)	Gas Vapor	1044	23	24,012
	Light Liquid	797	19	15,143
	Heavy Liquid	0	3	0
Pumps (Sealless Type)	Light Liquid	0	0	0
Pumps (Double Mechanical Seals or Equivalent)	Light Liquid	19	104	1,976
Pumps (Single Mechanical Seal)	Heavy Liquid	3	80	240
Compressor	Gas/Vapor	1	514	514
Flanges	All	5574	1.5	8,361
Pressure Relief Valves	All	16	0	0
Process Drains	All	0	80	0
Total Emissions			50,246 lbs/yr; 138 lbs/day	

BP has undertaken a program, in which fugitive component counts associated with processes/systems identified in the facility permit have been updated. The updates, which were initiated in 2005/2006, have taken place with the concurrence of the District. The potential reasons for the changes in fugitive component counts of Process 6, System 3 are stated below:

- Beginning in 2006 BP began utilizing the Rule 1173 fugitive component database in compiling fugitive components for permitting projects. BP believes that the use of this database has resulted in omission of existing fugitive components from counts, or in components not being reported for the appropriate process/system.
- BP has determined that many components in the plant-wide inventory have not been assigned to a specific process/system. This led to under-reporting of components for some processes/systems. These components have now been assigned to a process/system.
- For components in heavy liquid service, Rule 1173 only requires that pumps be inventoried and monitored. More recently, BP began using factors (based on the number of pumps in heavy liquid service) for estimating the number of valves and flanges in heavy liquid service.
- BP has determined that in some cases fugitive components were assigned to the wrong process/system. BP has now revised these assignments, resulting in changes in counts for some processes/systems.
- BP has determined that components were assigned to the incorrect service category (e.g. gas vapor versus light liquid). These assignements have been amended.

Process 21, System 4, Potential-to-Emit from Fugitive Components, Calculated Under A/N 506084

Component Type		Service	Number of Components	Emission Factor (lb/yr/ component)	Annual VOC Emissions (lbs/yr)
Valves	Sealed Bellows	Gas/Vapor and Light Liquid	313	0	0
	AQMD Approved I&M Program	Fuel & Natural Gas	0	4.55	0
		Gas Vapor	294	4.55	1,337.70
		Light Liquid	60	4.55	273.00
		Heavy Liquid	0	4.55	0
Pumps	Sealless Type	Light Liquid	0	0	0
	Double Mechanical Seals or Equivalent	Light Liquid	7	46.83	327.81
	Single Mechanical Seal	Heavy Liquid	0	46.83	0
Compressor		Gas/Vapor	3	9.09	27.27
Flanges		All	1605	6.99	11,218.95
Pressure Relief Valves		All	15	0	0
Process Drains		All	1	9.09	9.09
			Total lbs/year:		**13,193.82**
			Total lbs/day – 30 day avg.:		**37**
			Total lbs/day:		**36.15**
			Total lbs/hr:		**1.51**

Emission factors are derived using CAPCOA Revised 1995 EPA Correlation Equations and Factors for Refineries and Marketing Terminals, with a 500 ppmv screening value.

Process 21, System 11, Potential-to-Emit from Fugitive Components, Count Submitted to District on 9/23/2009

Component Type		Service	Number of Components	Emission Factor (lb/yr/ component)	Annual VOC Emissions (lbs/yr)
Valves	Sealed Bellows	Gas/Vapor and Light Liquid	263	0	0
	AQMD Approved I&M Program	Fuel & Natural Gas	7	4.55	31.85
		Gas Vapor	41	4.55	186.55
		Light Liquid	25	4.55	113.75
		Heavy Liquid	16	4.55	72.80
Pumps	Sealless Type	Light Liquid	0	0	0
	Double Mechanical Seals or Equivalent	Light Liquid	2	46.83	93.66
	Single Mechanical Seal	Heavy Liquid	0	46.83	0
Compressor		Gas/Vapor	1	9.09	9.09
Flanges		All	464	6.99	3,243.36
Pressure Relief Valves		All	5	0	0
Process Drains		All	2	9.09	18.18
			Total lbs/year:		**3,769.24**
			Total lbs/day – 30 day avg.:		**10**
			Total lbs/day:		**10.33**
			Total lbs/hr:		**0.43**

Emission factors are derived using CAPCOA Revised 1995 EPA Correlation Equations and Factors for Refineries and Marketing Terminals, with a 500 ppmv screening value.

The tables below show the potential-to-emit of criteria pollutants for the reformer heaters. These emissions were quantified in previous evaluations. No change in emissions from the heaters is expected, as a result of this project.

No. 1 Reformer Heater, No. 014, Potential-to-Emit of Criteria Pollutants, Calculated under A/N 395838

Pollutant	Heat or Fuel Rate	Emissions Factor	Emissions Rate (lb/hr)	Emissions Rate (lb/day)
NOx	255 MMBtu/hr	0.042 lb/MMBtu	10.71	257.04
ROG	0.1741 MMCF/hr	5.5 lb/MMCF	0.96	22.98
SOx	0.1741 MMCF/hr	16.9 lb/MMCF	2.94	70.61
CO	0.1741 MMCF/hr	84.0 lb/MMCF	14.62	350.99
PART	0.1741 MMCF/hr	7.6 lb/MMCF	1.32	31.76

SOx emissions factor basis is 100 ppmv sulfur compounds
CO emissions factor from ARCO EFB Report
NOx emissions factor of 0.042 lb/MMBtu is based on low NOx burner operation from P/C Application
Higher Heating Value (HHV) of 1465 Btu/scf is assumed for refinery gas

No. 2 Reformer Heater, No. 015, Potential-to-Emit of Criteria Pollutants, Calculated under A/N 303435

Pollutant	Heat or Fuel Rate	Emissions Factor	Emissions Rate (lb/hr)	Emissions Rate (lb/day)
NOx	310 MMBtu/hr	0.1 lb/MMBtu	31.00	744.00
ROG	0.2214 MMCF/hr	7 lb/MMCF	1.55	37.20
SOx	0.2214 MMCF/hr	50.537 lb/MMCF	11.19	268.57
CO	0.2214 MMCF/hr	4.1 lb/MMCF	0.91	21.79
PM	0.2214 MMCF/hr	21 lb/MMCF	4.65	111.6

Higher Heating Value (HHV) of 1400 Btu/scf is used for refinery gas

No. 3 Reformer Heater, No. 016, Potential-to-Emit of Criteria Pollutants, Calculated under A/N 395649

Pollutant	Heat or Fuel Rate	Emissions Factor	Emissions Rate (lb/hr)	Emissions Rate (lb/day)
NOx	171 MMBtu/hr	0.044 lb/MMBtu	7.52	180.48
ROG	0.126 MMCF/hr	7 lb/MMCF	0.88	21.17
SOx	0.126 MMCF/hr	16.9 lb/MMCF	2.13	51.11
CO	0.126 MMCF/hr	4.1 lb/MMCF	0.52	12.40
PM	0.126 MMCF/hr	21 lb/MMCF	2.65	63.50

SOx emissions factor basis is 100 ppmv sulfur compounds
Higher Heating Value (HHV) of 1357 Btu/scf is used for refinery gas

BP has conducted source testing to verify compliance with the Refinery Maximum Achievable Control Technology (R-MACT) standards under 40 CFR 63 Subpart UUU (Attachment #3). The requirements of this regulation are described below in the Rule Evaluation section. The BP Carson Refinery has existing semi-regenerative catalytic reformers. Requirements under 40 CFR 63 Subpart UUU include control of organic HAP emissions during initial catalyst

depressurization and catalyst purging operations and control of inorganic HAP emissions from vents during coke burnoff or catalyst rejuvenation of catalyst regeneration. These requirements include:

- Organic HAP Emissions During Initial Catalyst Depressurization and Catalyst Purging Operations: Control of vent streams by a flare meeting the control requirements under 63.11(b), or by a control device to reduce uncontrolled emissions of Total Organic Compounds (TOC), or non-methane TOC, by 98% (by weight) or to a concentration of 20 ppm (dry basis, as hexane, corrected to 3% O_2), whichever is less stringent. If a flare is used for control of organic HAPs, the flare pilot must be present at all times and the flare must be in operation at all times while receiving vent gas. The installation and use of a thermocouple, ultraviolet beam sensor, or infrared sensor is required to continuously detect the presence of a pilot flame.
- Inorganic HAP Emissions During Coke Burnoff or Catalyst Rejuvenation of Catalyst Regeneration: For existing semi-regenerative catalytic reforming units, reduce uncontrolled emissions of HCl by 92% (by weight) or to a concentration of 30 ppmv (corrected to 3% O_2); for existing cyclic or continuous catalytic reforming units, reduce uncontrolled emissions of HCl by 97% (by weight) or to a concentration of 10 ppmv (corrected to 3% O_2). The operating limit for the internal scrubbing system meeting the outlet HCl concentration limit, is that the daily average HCl concentration in the catalyst regenerator exhaust gas must not exceed the limit established during the source test. Internal scrubbing systems meeting the HCl outlet concentration limit must install colorimetric tube sampling systems to measure the concentration of HCl in the catalyst regenerator exhaust gas during coke burnoff and catalyst rejuvenation.

Results of the source tests, for each catalytic reformer unit are listed in tables below.

Catalytic Reformer Unit 1, Results for Source Test in March, 2007

Parameter	Initial Depressurization	Coke Burnoff Cycle Average	Reactivation Cycle Average	Compliance Limit
Visible Emissions from Flare, minutes	0.00			5
Flare Pilot Activity (On/Off) Verification	On			On
Reformer Vent, HCl Concentration, ppmv, by Modified EPA Method 26A		0.89	0.69	
Reformer Vent, HCl Concentration, ppmv, by Draeger Tube		0.00	0.43	30
Reformer Vent, HCl Concentration, ppmv @ 3% O2, by Modified EPA Method 26A		0.77	1.01	30

Note: Per 63.11(b)(4) flares are required to operate with no visible emissions, except for a total of 5 minutes in any 2 hour period. Flare observation over a period of 2 hours shall be according to EPA Method 22.

Catalytic Reformer Unit 2, Results for Source Test in January/February, 2009

Parameter	Initial Depressurization	Coke Burnoff Cycle Average	Reactivation Cycle Average	Compliance Limit
Visible Emissions from Flare, minutes	0.00			5
Flare Pilot Activity (On/Off) Verification	On			On
Reformer Vent, HCl Concentration, ppmv, by Modified EPA Method 26A		0.02	0.17	
Reformer Vent, HCl Concentration, ppmv, by Draeger Tube		0.00	0.50	30
Reformer Vent, HCl Concentration, ppmv @ 3% O2, by Modified EPA Method 26A		0.01	0.23	30

Note: Per 63.11(b)(4) flares are required to operate with no visible emissions, except for a total of 5 minutes in any 2 hour period. Flare observation over a period of 2 hours shall be according to EPA Method 22.

Catalytic Reformer Unit 3, Results for Source Test in May/June, 2008

Parameter	Initial Depressurization	Coke Burnoff Cycle Average	Reactivation Cycle Average	Compliance Limit
Visible Emissions from Flare, minutes	0.00			5
Flare Pilot Activity (On/Off) Verification	On			On
Reformer Vent, HCl Concentration, ppmv, by Modified EPA Method 26A		0.03	0.09	
Reformer Vent, HCl Concentration, ppmv, by Draeger Tube		< 1	< 1	30
Reformer Vent, HCl Concentration, ppmv @ 3% O2, by Modified EPA Method 26A		0.02	0.11	30

Note: Per 63.11(b)(4) flares are required to operate with no visible emissions, except for a total of 5 minutes in any 2 hour period. Flare observation over a period of 2 hours shall be according to EPA Method 22.

RULE EVALUATION

California Environmental Quality Act (CEQA)

The CEQA Applicability forms (400-CEQA) submitted by BP for this project indicate that the project does not result in impacts which require the preparation of a CEQA document. The project will not result in any increase in emissions of criteria pollutants or Toxic Air Contaminants (TAC)s. Therefore, the expected impacts of the project on the environment are not significant and preparation of an Environmental Impact Report (EIR) is not required.

Rule 212 - Standards for Approving Permits and Issuing Public Notice

Public noticing will not be required for this project for the following reasons:

212(c)(1): This section requires public noticing for a new or modified permit unit, if it is within 1000 feet of a school. The subject equipment is not within 1000 feet of a school boundary.

212(c)(2): This section requires noticing when there is an emission increase exceeding any of the daily maxima specified in Rule 212 (g), as listed below:

Volatile Organic Compounds	30 lbs/day
Nitrogen Dioxide	40 lbs/day
PM10	30 lbs/day
Sulfur Dioxide	60 lbs/day
Carbon Monoxide	220 lbs/day
Lead	3 lbs/day

This project does not result in an increase in criteria pollutant emissions. Therefore, public noticing is not triggered under this section.

212(c)(3): This section requires public noticing for any new or modified permit unit, if the modification results in an increase in exposure to Toxic Air Contaminants (TAC) such that the Maximum Individual Cancer Risk (MICR) is greater than or equal to 1 in a million ($1x10^{-6}$) during a lifetime of 70 years. This section also requires public noticing if it is determined that the equipment will result in exposure to substances which pose a potential risk of nuisance. The project has no potential to increase TAC emissions and therefore a Health Risk Assessment (HRA) has not been performed. Public noticing is not required based on the standards of this section.

212(g): This section describes the scope of dissemination of a public notice for new or modified units which result in emissions increases exceeding limits stated above. This includes a District analysis of the effect on air quality to be viewed at one location in the affected area, prominent advertisement in the affected area, and mailing of the notice to the US EPA, the affected state, and local government agencies. Since the subject permit action does not result in an emissions increase exceeding limits stated in 212(g), this section does not apply.

Therefore, public noticing is not required for this project and the requirements of Rule 212 are met.

Rule 401 – Visible Emissions

This rule requires that a source not emit visible emissions with a shade as dark as or darker than that which has been designated as Ringelmann No. 1, by the US Bureau of Mines, for a period exceeding three minutes in any hour. The subject equipment is not expected to emit visible emissions in excess of the limits stated in this rule; therefore compliance is expected.

Rule 402 - Nuisance

With proper operation and maintenance, the subject equipment is not expected to cause a public nuisance.

Rule 404 – Particulate Matter – Concentration

This rule limits the particulate matter concentration from a source. Particulate matter concentration limits are proportional to the volumic flow rate of gases discharged, with a maximum concentration of 0.196 grains/cubic foot. The reformer heaters are subject to the requiment of this rule. The project, to update the permits for reformer heaters to show that they control vent streams from reformer reactors during periods

of catalyst regeneration, has no potential to impact particulate matter emission. Continue compliance with this the requirements of this rule is expected.

Rule 407 – Liquid and Gaseous Air Conaminants

This rule states limits of 2000 ppm CO (by volume on a dry basis averaged over 15 minutes) and 500 ppm SO_2 (averaged over 15 minutes) for pollutant sources. However, as stated in Rule 2001(j), the SO_x limitation under Rule 407 is not applicable to sources regulated under the District's SO_x RECLAIM program. The reformer heaters are subject to the CO concentration limit of this rule. The project, to update the permits for reformer heaters to show that they control vent streams from reformer reactors during periods of catalyst regeneration, has no potential to impact CO emission. Continue compliance with this the requirements of this rule is expected.

Rule 409 – Combustion Contaminants

This rule limits particulate matter emissions from combustion sources to 0.1 grains per cubic foot (calculated at 12% CO2 and averaged over 15 minutes). The reformer heaters are subject to the requirement of this rule. The project, to update the permits for reformer heaters to show that they control vent stream from reformer reactors during periods of catalyst regeneration, has no potential to impact particulate matter emission. Continue compliance with this the requirements of this rule is expected.

Rule 431.1 – Sulfur Content of Gaseous Fuels

This rule also limits the sulfur content of refinery fuel gas to a maximum of 40 ppmv sulfur, as H_2S. However, since SO_x emissions from the reformer heaters are subject to the District's SO_x RECLAIM program, this limitation does not apply to this equipment.

Reg. IX - New Source Performance Standards

The project is not expected to result in any increase in VOC emissions and therefore it is not deemed a "modification" under 40 CFR 60.14, nor is it deemed a "reconstruction" under 40 CFR 60.15. Thus, this project does not trigger any additional New Source Performance Standards (NSPS) requirements for the subject equipment.

The reformer heaters are subject to the requirements of 40 CFR 60, Subpart J, Standards of Performance for Petroleum Refineries. Section 60.104 limits the H_2S concentration in fuel burned to 0.1 grains/dscf (equal to 160 ppm). The regulation requires monitoring and recording of either the SO_2 emissions to the atmosphere or the H_2S in fuel gas before being burned in the combustion device. Permit conditions B61.4, D90.4, and H23.1 address applicability of this regulation and state its requirements. BP monitors the H2S concentration in the refinery fuel gas with an on-line GC at the North Area Fuel Gas Mix

Drum and with another analzyer at a vapor recovery line of the No. 1 Crude Unit. Both monitors are Siemens Advance Maxum Edition II Analyzers. The H2S concentration in the fuel gas is generally less than 40 ppmv, but varies widely depending on factors such as whether the Merox Units are in operation, sulfur scrubbing in other sulfur removal equipment, etc... The project, to update the permits for the reformer heater, to show that they control vent stream from reformer reactors during periods of catalyst regeneration, has no potential to impact fuel sulfur concentrations. Therefore, it is expected that the reformer heaters will continue to comply with the requirements of this regulation.

Permit condition H23.3 requires fugitive VOC components, including those in the Catalytic Reformer Units, Refinery Vapor Recovery System, and in the North Area Flare Gas Recovery System to meet standards promulgated under 40CFR60 Subpart GGG. The BP Carson Refinery has applied the standards under this regulation on a facility-wide basis. This regulation requires that fugitive components meet standards stated in Sections 60.482-1 through 60.482-10, as soon as practicable, or within 180 days of equipment startup. The existing fugitive components in these systems are operated, monitored, and repaired according to the standards of this regulation and are included in the facility's Rule 1173 inspection and maintenance program, which in general is more stringent than the requirements of this regulation. Continued compliance with these standards, for existing fugitive components associated with the subject equipment, is expected.

Compressors D2800 and D2807, which serve the North Area Flare Gas Recovery System and the Refinery Vapor Recovery System, respectively, are subject to standards under 40CFR60 Subpart GGGa: Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006. Requirements for compressors include that they be equipped with a seal system, which includes a barrier fluid, which prevents leakage of VOC to the atmosphere. The barrier fluid system must meet one of the following requirements: 1) the barrier fluid must be operated at a pressure greater than the compressor stuffing box pressure, or 2) the system must be operated with a barrier fluid degassing reservoir routed to a process, a fuel gas system, or is connected to a control device meeting standards under 60.482-10a, or 3) the system must purge barrier fluid into a process stream with zero VOC emissions to the atmosphere. The barrier fluid system must be in heavy liquid service and can not in VOC service. Each barrier fluid system must be equipped with a sensor to detect failure of the seal system, the barrier fluid system, or both. The sensor must be checked daily or have an audible alarm. A compressor is exempt from these requirements if it is equipped with a closed vent system to capture and transport leakage from a compressor drive shaft, back to a process, or to a fuel gas system, or to a control device meeting standards under 60.482-10a. In previous District

evaluations, the subject equipment has been determined to be in compliance with these standards. Continue compliance with this regulation is expected.

Reg. X – National Emission Standards for Hazardous Air Pollutants

The subject equipment include two devices, Desulfurizer Stripper Overhead Accumulator D430 and Vapor Recovery Knockout Drum D1325, which are subject to the National Emission Standard for Benzene Waste Operations, promulgated under 40 CFR 61 Subpart FF. Both devices are classified as Oil Water Separators under this regulation, and are required to meet standards under 40 CFR 61.347(a) and (b). This section requires that an Oil Water Separator be equipped with fixed cover and closed vent system which routes all organic vapors to a control device. The fixed cover shall operate with no detectable VOC emissions as determined by an instrument reading less than 500 ppm VOC, above background. Annual testing for VOC emissions (above background) and quarterly visual inspections of equipment are required. The closed vent system and control device are required to be in compliance with standards under 61.349. As an alternative to standards stated under 61.347, an Oil Water Separator may be equipped with a floating roof, or other control device, meeting the requirements under 61.352. Continued compliance with these standards is expected.

Rule 1118 – Control of Emissions From Refinery Flares

This rule requires that, effective January 1, 2007, all flares be operated in such a manner as to minize flaring and that no vent gas be combusted exept during emergencies, startups, shutdowns and essential operational needs. For facilities which must construct a flare gas recovery system to comply with this rule, the effective date for this requirement is January 1, 2009, if an application for construction of a flare gas recovery system was submitted by January 1, 2006. A further requirement is that the facility prevent the combustion in a flare of vent gas with a hydrogen sulfide concentration in excess of 160 ppm, averaged over three hours, excluding vent gas from an emergency, startup, shutdown, process upset and relief valve leakage. The rule also states performance targets for sulfur dioxide emissions from flares, with the most stringent of 0.5 tons of sulfur dioxide per million barrels of crude oil processing capacity, beginning calendar year 2012. The North Area Flare Gas Recovery System was constructed to recover vent gas which would otherwise be flared and thus minimizes the flaring of gases. All vent gases from initial catalyst depressurization and catalyst purging operations of catalyst regeneration shall be directed to either the FCCU Flare System (Process 21, System 2) or to the Hydocracker Flare System (Process 21, System 3). This vent gas may be combusted in a flare as it is from a Planned Shutdown or Planned Turnaround. Continued compliance with the standards of this rule is expected.

Rule 1173 – Fugitive Emissions of Volatile Organic Compounds

This rule specifies leak control, identification, operation, inspection, maintenance, and recordkeeping requirements for all VOC components. The subject equipment is included in the facility's inspection and monitoring program and is expected to continue to comply with the requirements of this rule.

Reg. XIII - New Source Review:

This rule has requirements including that projects utilize Best Available Control Technology (BACT), that emissions offsets be provided for increases in non-attainment air contaminant emissions, and that air quality modeling be performed to assess the impacts of the project on ambient air quality. Since the project is not expected to result in an increase in criteria pollutant emissions, it is exempt from the requirements of this regulation.

Rule 1401 – New Source Review of Carcinogenic Air Contaminants

This rule states requirements including that the increase in TAC emissions from a project not result in a Maximum Individual Cancer Risk (MICR) at any receptor location exceeding one in a million ($1x10^{-6}$) if T-BACT is not used, or ten in a million ($10x10^{-6}$) if T-BACT is employed, that the Acute and Chronic Hazard Indices not exceed 1.0 for any target organ system at any receptor location, and that the cancer burden not exceed 0.5. The project is not expected to result in an increase in TAC emissions and therefore a screening HRA has not been performed. Per 1401(g)(1)(B) any project which results in no increase in cancer burden, MICR, and Acute/Chronic Hazard Indices at any receptor location is exempt from the requirements of this rule. Since the project is not expected to result in an increase in TAC emissions, it is exempt from the requirements of Rule 1401.

Reg XVII – Prevention of Signigicant Deterioration

This rule applies to pollutants for which attainment with ambient air quality standards has been achieved in the South Coast Air Basin (NO_2, SO_2, and CO). This project will not result in an increase in emissions of these pollutants. Therefore, Reg XVII requirements do not apply.

Reg. XX - Regional Clean Air Incentives Market (RECLAIM)

The facility is subject to RECLAIM requirements. The reformer heaters are Major NOx/SOx sources and are therefore monitored by Continuous Emissions Monitoring Systems (CEMS). Data from the CEMS are transmitted daily to the SCAQMD. The CEMS are certified semi-annually or annually. Continued compliance with these requirements is expected.

Reg. XXX - TV Operating Permits

The facility is subject to Reg XXX and the initial Title V permit was issued on September 1, 2009. Since the project results in no increase in Reg XIII pollutants or Hazardous Air Pollutants (HAP) and it does not trigger additional applicability of NSPS or NESHAP standards, it is considered a Minor Title V Permit Revision under Rule 3000. As such, it is subject to the 45 day EPA review process but is not subject to public noticing requirements under Rule 3006.

40 CFR 63, Subpart CC

As specified in the "Emissions and Requirements" column, fugitive components of the subject permit systems are subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Petroleum Refineries, as stated in 40 CFR 63 Subpart CC. Continued compliance with standards for equipment leaks, stated under 40 CFR 60 Subpart VV, as referenced in 40 CFR 63.648, is expected.

Under this regulation (40 CFR 63 Subpart CC) Reformer Flash Tank D474 is designated as a Group 2 Storage Tank. As such, it is not required to meet any control standards, but the facility is required to maintain records of data, assumptions and procedures used in making the determination of Group 2 status. Continued compliance with these requirements is expected.

40 CFR 63, Subpart UUU

Catalytic Reforming Unit Nos. 1, 2, and 3 are subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Petroleum Refineries, promulgated under 40 CFR 63 Subpart UUU. The reactors in these catalytic reforming units are tagged with this regulation in the "Emissions and Requirements" column. The regulation is applicable to vents from catalytic reforming units which are associated with regeneration of the catalyst, including those from reactor depressurization, purging, coke burnoff, and catalyst rejuvenation. The regulation limits organic HAP emissions during initial catalyst depressurization and catalyst purging operations. It requires that these vent streams be controlled by a flare meeting the control requirements under 63.11(b), or that a control device be used to reduce uncontrolled emissions of Total Organic Compounds (TOC), or non-methane TOC, by 98% (by weight) or to a concentration of 20 ppm (dry basis, as hexane, corrected to 3% O_2), whichever is less stringent. It requires that if a boiler or process heater is used to meet the percent reduction or concentration limit, that the vent stream be introduced into the flame zone of the combustion device or into another location which will achieve the prescribed percent reduction or concentration limit. If a flare is used for control of organic HAPs, the flare pilot must be present at all times and the flare must be in operation at all times while receiving vent gas. The installation and use of a thermocouple, ultraviolet beam sensor, or infrared sensor is

required to continuously detect the presence of a pilot flame. The regulation also requires preparation of an operation, maintenance, and monitoring plan according to requirements under 63.1574(f) and operation at all times according to the procedures of this plan.

The regulation also states a limitation for inorganic emissions, which applies to vents from coke burnoff or catalyst rejuvenation steps of catalyst regeneration. The requirements are as follows: for existing semi-regenerative catalytic reforming units, to reduce uncontrolled emissions of HCl by 92% (by weight) or to a concentration of 30 ppmv (corrected to 3% O_2); for existing cyclic or continuous catalytic reforming units, to reduce uncontrolled emissions of HCl by 97% (by weight) or to a concentration of 10 ppmv (corrected to 3% O_2). The regulation prescribes the following control methods to meet the inorganic emissions limit: wet scrubber, internal scrubbing system or no controls (e.g. hot regen system) meeting the outlet HCl concentration limit, internal scrubbing system meeting the HCl percent reduction standard, fixed-bed gas-solid absorption system, and moving-bed gas-solid absorption system. The operating limit for the internal scrubbing system meeting the outlet HCl concentration limit, is that the daily average HCl concentration in the catalyst regenerator exhaust gas must not exceed the limit established during the source test. The operating limit for internal scrubbing systems meeting the HCl percent reduction standard, is that the daily average pH or alkalinity of the water (or scubbing liquid) exiting the internal scrubbing system must not fall below the limit established during the source test and the daily average liquid-to-gas ratio must not fall below the limit established during the source test. Internal scrubbing systems meeting the HCl outlet concentration limit must install colorimetric tube sampling systems to measure the concentration of HCl in the catalyst regenerator exhaust gas during coke burnoff and catalyst rejuvenation. Internal scrubbing systems meeting the HCl percent reduction standard are required to install continuous parameter monitoring systems to measure and record the gas flow rate, total water (or scrubbing liquid) flow rate entering the internal scrubbing system and the pH or alkalinity of water exiting the internal scrubbing system during coke burnoff and catalyst rejuventation.

The catalytic reformer units at BP are semi-regenerative and catalyst is typically regenerated once or twice a year with each regeneration period lasting 3 to 4 days. To control organic HAPs emissions during initial catalyst depressurization and catalyst purging steps of catalyst regeneration, vent gas from the reactors is directed to either the FCCU Flare System or the Hydrocracker Flare System. To control inorganic HAPs emissions during coke burnoff and catalyst rejuvenation steps, vent gas from the reactors passes through internal scrubbers, which scrub inorganic HAPs by reaction with a soda ash/water solution. Gas flows from the internal scrubbers to

the reformer flash tanks and then is incinerated by injection into the flame zone of the reformer heaters.

Under this set of applications BP requests update of the facility permit to list control equipment and to describe control measures used for compliance with this regulation. Permit updates include: listing of internal scrubbers; showing the connection of reactors to internal scrubbers through listing of devices in the "connected to" column; and showing the path of vent gas flow during catalyst regeneration (i.e. vent gases flow from reactors to the internal scrubbers, then to reformer flash tanks and finally are incinerated in the combustion zone of the reformer heaters). A permit condition has been added to specify that during reactor depressurization, vent gases from reformer flash tanks shall be controlled by venting to either the FCCU Flare System or the Hydrocracker Flare System (see Rule 1118 section for compliance evaluation). Another permit condition requires that during the coke burnoff and catalyst rejuvenation, vent gases from catalytic reactors be treated by the internal scrubbers and then be directed through reformer flash tanks and into the flame zone of reformer heaters. These permit amendments do not involve construction of new equipment or modification of existing equipment. The permit amendment reflects the existing on-going operation at this site. Continued compliance with the standards of this regulation is expected.

RECOMMENDATION:

Issue the Permits to Operate and Permits to Construct with the following conditions:

S13.2 All devices under this system are subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
VOC	District Rule	1123

[**RULE 1123, 12-7-1990**]

[Systems subject to this condition: Process 6, System 1, 2, 3]

S15.6 The vent gases from all affected devices of this process/system shall be vented as follows:

All sour gases shall be directed to amine contactor system located within this system.

This process/system shall not be operated unless the amine contactor system is in full use and has a valid permit to receive vent gases from this system.

[**RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996**]

[Systems subject to this condition: Process 6, System 1, 2]

S15.40 The vent gases from all affected devices of this process/system shall be vented as follows:

All sour gases during normal operation shall be directed to the sour gas treating system located in the Coker Unit (Process 2, System 11).

This process/system shall not be operated unless the above equipment is in full use and has a valid permit to receive vent gases from this system.

[**RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996**]

[Systems subject to this condition: Process 21, System 11]

S15.41 The vent gases from all affected devices of this process/system shall be vented as follows:

All emergency vent gases shall be directed to a flare.

This process/system shall not be operated unless the above air pollution control equipment is in full use and has a valid permit to receive vent gases from this system.

[**RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996**]

[Systems subject to this condition: Process 21, System 11]

S18.6 All affected devices listed under this process/system shall be used only to receive, recover and/or dispose of vent gases routed from the system(s) or process(es) listed below, in addition to specific devices identified in the "connected to" column:

Crude Distillation Units (Process: 1, System: 1, 2 & 3))

Vacuum Distillation Units (Process: 1, System: 5 & 6)

Slop Oil Rerun Unit (Process: 1, System: 7)

Coking Units (Process: 2, System: 1 & 2)

Coker Blowdown Facility (Process: 2, System: 3)

Coker Gas Compression Systems (Process: 2, System: 5 & 6)

Coker Gas Treating Unit (Process: 2, System: 11)

Fluid Catalytic Cracking Unit (Process: 3, System: 1 & 2)

FCCU Gas Compression & Hydrogen Sulfide Removal Unit (Process: 3, System: 3)

FCCU Catalyst Handling Facility (Process: 3, System: 4)

Propylene Tetramer Unit (Process: 3, System: 6)

FCCU Heaters (Process: 3, System: 7)

Superfractionation Unit (Process: 4, System: 1)

Naphtha Splitter Unit (Process: 4, System: 2)

Light Ends Depropanizer Units (Process: 4, System: 3 & 4)

North Area Deisobutanizer Unit (Process: 4, System: 5)

Coker Gasoline Fractionation Unit (Process: 4, System: 7)

Liquid Recovery Unit (Process: 4, System: 8)

Propane/Propylene Splitter Unit (Process: 4, System: 9)

Jet Fuel Hydrotreating Unit (Process: 5, System: 1)

Mid-Barrel Desulfurizer Unit (Process: 5, System: 2)

Fluid Feed HDS Unit (Process: 5, System: 3)

Light Gasoline Hydrogenation unit (Process: 5, System: 4)

Naphtha HDS Unit (Process: 5, System: 5)

Catalytic Reformer Units (Process: 6, System: 1, 2 & 3)

Hydrogen Plant (Process: 7, System: 1)

Hydrogen Unit No. 2 (Process: 7, System: 2)

Hydrocracking Units (Process: 8, System: 1 & 2)

C4 Alkylation Unit (Process: 9, System: 1)

Catalytic Polymerization Unit (Process: 9, System: 2)

C5 Alky Depentanizer Unit (Process: 9, System: 6)

Naphtha Isomerization Unit (Process: 9, System: 8)

Iso-Octene Unit (Process: 9, System: 9)

Butane Isomerization Unit (Process: 9, System: 10)

Fuel Gas Mix System (Process: 10, System: 1)

LPG Recovery System (Process: 10, System: 2)

Liquid Petroleum Gas Drying Facility (Process: 10, System: 3)

Gasoline Blending Unit (Process: 11, System: 1)

Petreco Stove Oil-Treaters No. 1, 2 & 4 (Process: 12, System: 1, 2 & 3)

Catalytic Rerun Gasoline Treating Unit (Process: 12, System: 4)

Straight Run Gasoline Treating Unit (Process: 12, System: 5)

Fixed Bed Merox Treating Unit (Process: 12, System: 7)

UOP Merox Treating Unit (Process: 12, System: 8)

MDEA Regeneration Systems No. 1, 2, 3, 4 & 5 (Process: 12, System: 9, 10, 11, 12 & 13)

North & South Sour Water Treatment Systems (Process: 12, System: 14 & 15)

Sour Water Treater (Process: 12, System: 16)

Sour Water Oxidizer No. 3 (Process: 12, System: 17)

Spent Caustic Separation System (Process: 12, System: 20)

Diesel Oil Dehazing Facility (Process: 12, System: 22)

Refinery Gas Treating Units (Process: 12, System: 24 & 25)

Spent Acit Storage Facility (Process: 12, System: 27)

Mixed Light Ends Tank Car Loading/Unloading (Process: 14, System: 2)

LPG Tank Truck Loading/Unloading Rack (Process: 14, System: 10)

LPG Rail Car Load/Unloading Rack (Process: 14, System: 11)

Oil Water Treating (Benzene Neshaps) System (Process: 15, System: 7)

Waste Oil Recovery Unit (Process: 15, System: 8)

Fixed Roof Tanks (Process: 16, System: 1)

Pressurized Tanks (Process: 16, System: 3)

No. 4 Steam Plant (Process: 18, System: 1)

South Area Flare System (Process: 21, System: 1)

FCCU Flare System (Process: 21, System: 2)

Refinery Vapor Recovery System (Process: 21, System: 4)

[**RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996**]

[Systems subject to this condition: Process 21, System 4]

S31.4 The following BACT requirements shall apply to VOC service fugitive components associated with the devices that are covered by application number(s) 427414, 376189:

For the purpose of this condition, leakless valve shall be defined as any valve equipped with sealed bellow or equivalent as approved in writing by the District prior to installation. Components shall be defined as any valve, flange, fitting, pump, compressor, pressure relief device, diaphragm, hatch, sight-glass, and meter, which are not exempted by Rule 1173.

The operator shall keep records of the monthly inspection (and quarterly where applicable), subsequent repair, and reinspection, in a manner approved by the District.

All process drains shall be equipped with water seal, or a closed vent system and control device complying with the requirements of 40CFR60 Subpart QQQ Section 60.692-5.

All components in VOC service, except valves and flanges shall be inspected quarterly using EPA reference method 21. All valves and flanges in VOC service except those specifically exempted by Rule 1173 shall be inspected monthly using EPA Method 21.

If 98.0 percent or greater of the new valve and the new flange population inspected is found to leak gaseous or liquid volatile organic compounds at a rate less than 500 ppm for two consecutive months, then the operator may revert to a quarterly inspection program with the approval of the executive officer. This condition does not apply to leakless valves.

All valves in VOC service shall be of leakless type, except those specifically exempted by Rule 1173 or approved by the District in the following applications: heavy liquid service, control valves, instrument piping/tubing, applications requiring torsional valve stem motion, applications where failures could pose safety hazards (e.g. drain valves with valve stems in horizontal position), retrofits with space limitations, and valves not commercially available.

The operator shall provide to the District, no later than 90 days after initial startup, a recalculation of the fugitive emissions based on actual components installed and removed from service. The operator shall also submit a complete, as built, piping and instrumentation diagram(s) and copies of requisition data sheets for all non-leakless type valves with a listing of tag numbers and reasons why leakless valves were not used.

All open-ended valves shall be equipped with cap, blind flange, plug, or a second valve.

All pressure relief valves shall be connected to closed vent system or equipped with rupture disc.

All sampling connections shall be closed-purge, closed-loop, or closed-vent system.

All components in VOC service, a leak greater than 500 ppm but less than 1,000 ppm measured as methane above background as measured using EPA Method 21, shall be repaired within 14 days of detection. A leak greater than 1,000 ppm shall be repaired according to Rule 1173.

All components are subject to 40CFR60, Subpart GGG

[**RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996**]

[Systems subject to this condition : Process 6, System 3]

S31.6 The following BACT requirements shall apply to VOC service fugitive components associated with the devices that are covered by application number(s) 434526,434527,434528,436040, 436041 and 454560:

The operator shall provide to the District, no later than 60 days after initial startup, a recalculation of the fugitive emissions based on actual components installed and removed from service. The valves and flanges shall be categorized by size and service. The operator shall submit a listing of all new non-bellows seal valves which shall be categorized by tag no., size, type, operating temperature, operating pressure, body material, application, and reasons why bellows seal valves were not used

All new valves in VOC service, except those specifically exempted by Rule 1173 and those in heavy liquid service as defined in Rule 1173, shall be bellows seal valves, except as approved by the District, in the following applications: heavy liquid service, control valve, instrument piping/tubing, applications requiring torsional valve stem motion, applications where valve failure could pose safety hazard (e.g., drain valves with valve stems in horizontal position), retrofits/special applications with space limitations, and valves not commercially available

All new valves and major components in VOC service as defined by Rule 1173, except those specifically exempted by Rule 1173 and those in heavy liquid service as defined in Rule 1173, shall be distinctly identified from other components through their tag numbers (e.g., numbers ending in the letter "N"), and shall be noted in the records

All new components in VOC service as defined in Rule 1173, except valves and flanges, shall be inspected quarterly using EPA reference Method 21. All new valves and flanges in VOC service, except those specifically exempted by Rule 1173, shall be inspected monthly using EPA Method 21

If 98.0 percent or greater of the new (non-bellows seal) valves and the new flange population inspected is found to leak gaseous or liquid volatile organic compounds at a rate less than 500 ppmv for two consecutive months, then the operator may change to a quarterly inspection program with the approval of the District

The operator shall revert from quarterly to monthly inspection program if less than 98.0 percent of the new (non-bellows seal) valves and the new flange population inspected is found to leak gaseous or liquid volatile organic compounds at a rate less than 500 ppmv

All new components in VOC service with a leak greater than 500 ppmv but less than 1,000 ppmv, as methane, measured above background using EPA Method 21 shall be repaired within 14 days of detection. Components shall be defined as any valve, fitting, pump, compressor, pressure relief valve, diaphragm, hatch, sight-glass, and meter, which are not exempted by Rule 1173

The operator shall keep records of the monthly inspection (quarterly where applicable), subsequent repair, and reinspection, in a manner approved by the District. Records shall be kept and maintained for at least five years, and shall be made available to the Executive Officer or his authorized representative upon request.

The operator shall replace 4 additional existing valves in VOC service with bellow sealed valves to offset the emission increase from the modification to the above referenced applications. The operator shall submit to the District within 90 days of startup, copies of the as-built piping and instrumentation diagram identifying the replacement valves and copies of requisition data sheet for the new bellow sealed valves. The additional valves to be replaced shall include the following valves with Rule 1173 tag numbers: NESHAP 1351, 1352, 1354, and 1355

All open-ended valves shall be equipped with cap, blind flange, plug, or a second valve.

All pressure relief valves shall be connected to closed vent system or equipped with rupture disc.

All sampling connections shall be closed-purge, closed-loop, or closed-vent system.

All components are subject to 40CFR60, Subpart GGG

[**RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996**]

[Systems subject to this condition: Process 21, System 4]

S31.10 The following BACT requirements shall apply to VOC service fugitive components associated with the devices that are covered by application number(s) 454566, 454567, 454568, 458598, 458600, 458610, 459257, 459284 & 459286:

The operator shall provide to the District, no later than 90 days after initial startup, a recalculation of the fugitive emissions based on actual components installed and removed from service. The valves and flanges shall be categorized by size and service. The operator shall submit a listing of all new non-bellows seal valves which shall be categorized by tag no., size, type, operating temperature, operating pressure, body material, application, and reasons why bellows seal valves were not used

All new valves in VOC service, except those specifically exempted by Rule 1173 and those in heavy liquid service as defined in Rule 1173, shall be belows seal valves, except as approved by the District, in the following applications: heavy liquid service, control valve, instrument piping/tubing, applications requiring torsional valve stem motion, applications where valve failure could pose safety hazard (e.g., drain valves with valve stems in horizotal position), retrofits/special applications with space limitations, and valves not commercially available

All new valves and major components in VOC service as defined by Rule 1173, except those specifically exempted by Rule 1173 and those in heavy liquid service as defined in Rule 1173, shall be distinctly identified from other components through their tag numbers (e.g., numbers ending in the letter "N"), and shall be noted in the records

All new components in VOC service as defined in Rule 1173, except valves and flanges, shall be inspected quarterly using EPA reference Method 21. All new valves and flanges in VOC service, except those specifically exempted by Rule 1173, shall be inspected monthly using EPA Method 21

If 98.0 percent or greater of the new (non-bellows seal) valves and the new flange population inspected is found to leak gaseous or liquid volatile organic compounds at a rate less than 500 ppmv for two consecutive months, then the operator may change to a quarterly inspection program with the approval of the District

The operator shall revert from quarterly to monthly inspection program if less than 98.0 percent of the new (non-bellows seal) valves and the new flange population inspected is found to leak gaseous or liquid volatile organic compounds at a rate less than 500 ppmv

All new components in VOC service with a leak greater than 500 ppmv but less than 1,000 ppmv, as methane, measured above background using EPA Method 21 shall be repaired within 14 days of detection. Components shall be defined as any valve, fitting, pump, compressor, pressure relief valve, diaphragm, hatch, sight-glass, and meter, which are not exempted by Rule 1173

The operator shall keep records of the monthly inspection (quarterly where applicable), subsequent repair, and reinspection, in a manner approved by the District. Records shall be kept and maintained for at least five years, and shall be made available to the Executive Officer or his authorized representative upon request.

All open-ended valves shall be equipped with cap, blind flange, plug, or a second valve.

All pressure relief valves shall be connected to a closed vent system or equipped with a rupture disc and telltale indicator

All pumps shall utilize double seals and be connected to a closed vent system.

All compressors to have a seal system with a higher pressure barrier fluid.

[**RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996**]

[Systems subject to this condition: Process 21, System 11]

S46.1 The following conditions shall apply to VOC service fugitive components in this system:

For the purpose of this condition, leakless valve shall be defined as any valve equipped with sealed bellow or equivalent as approved in writing by the District prior to installation. Components shall be defined as any valve, flange, fitting, pump, compressor, pressure relief device, diaphragm, hatch, sight-glass, and meter, which are not exempted by Rule 1173.

For the purpose of this condition, existing component shall be defined as any component that was installed under a permit to construct/operate that was issued prior to June 1, 1993. New component shall be defined as any component that was installed or modified under a permit to construct that was issued between June 1, 1993 and December 27, 2001.

All new valves in VOC service shall be of leakless type, except those specifically exempted by Rule 1173 or approved by the District in the following applications: heavy liquid service, control valves, instrument piping/tubing, applications requiring torsional valve stem motion, applications where failures could pose safety hazards (e.g. drain valves with valve stems in horizontal position), retrofits with space limitations, and valves not commercially available.

All new valves and new major components, as defined in Rule 1173, shall be physically identified in the field with special marking that distinguishes the components from existing. Additionally all new components shall be distinctly identified from existing components through their tag numbers (e.g. numbers ending in the letter "N"), and shall be noted in the records.

All new components in VOC service with a leak greater than 500 ppm but less than 1,000 ppm, as methane, measured above background using EPA Method 21, shall be repaired within 14 days of detection. A leak greater than 1,000 ppm shall be repaired according to Rule 1173.

All new pressure relief valves shall be connected to closed vent system or equipped with rupture disc.

All new sampling connections shall be closed-purge, closed-loop, or closed-vent system.

All components are subject to 40CFR60, Subpart GGG.

[**RULE 1173, 5-13-1994**; RULE 1173, 2-6-2009; **RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996; 40CFR 60 Subpart GGG, 6-2-2008**]

[Systems subject to this condition: Process 6, System 1]

S46.2 The following conditions shall apply to VOC service fugitive components in this system:

For the purpose of this condition, leakless valve shall be defined as any valve equipped with sealed bellow or equivalent as approved in writing by the District prior to installation. Components shall be defined as any valve, flange, fitting, pump, compressor, pressure relief device, diaphragm, hatch, sight-glass, and meter, which are not exempted by Rule 1173.

For the purpose of this condition, existing component shall be defined as any component that was installed under a permit to construct/operate that was issued prior to June 1,

1993. New component shall be defined as any component that was installed or modified under a permit to construct that was issued between June 1, 1993 and December 27, 2001.

The operator shall provide to the District, no later than August 29, 2003, a complete, as built, process instrumentation diagram(s) with a listing showing by functional grouping, location, type, accessibility, and application of each new valve in VOC service. The operator shall provide copies of requisition data sheets for all non-leakless type valves with a listing of tag numbers and reasons why leakless valves were not used.

The operator shall provide to the District, no later than August 29, 2003, a list of the following components broken down into the categories contained in District Form E-18A entitled "Fugitive Component Count": existing components, new components proposed to be installed under applicable permit(s) to construct, and new components that were actually installed under applicable permit(s) to construct.

[**RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996**]

[Systems subject to this condition: Process 6, System 1]

S56.1 Vent gases from all affected devices of this process/system shall be directed to a gas recovery system, except for the venting of gases from equipment specifically identified in a permit condition, and for the following events for which vent gases may be directed to a flare:

1) Vent gases during an Emergency as defined in Rule 1118;

2) Vent gases resulting from Planned Shutdowns, Startups and/or Turnarounds as defined in Rule 1118, provided that the owner/operator follows the applicable options and any associated limitations to reduce flaring that were identified, evaluated and most recently submitted by the owner/operator to the Executive Officer pursuant to Rule 1118, or any other option(s) which reduces flaring for such events; and

3) Vent gases due to and resulting from from an Essential Operating Need, as defined in Rule 1118.

The evaluation of options to reduce flaring during Planned Shutdowns, Startups and/or Turnarounds shall be updated annually to reflect any revisions, and submitted to the Executive Officer in the first quarter of each year, but no later than March 31st of that year.

This process/system shall not be operated unless its designated flare(s) are in full use and have valid permits to receive vent gases from this process/system.

Vent gases shall not be released to the atmosphere except from the existing safety devices or relief valves on the following equipment:

Process 1, System 2: 10, 12, 14
Process 1, System 3: 19, 20, 24 to 26
Process 1, System 5: 35, 39, 41, 42, 2726
Process 1, System 6: 43, 49, 57, 58
Process 1, System 7: 59, 60, 61, 62
Process 2, System 1: 74, 77, 2388
Process 2, System 2: 82, 89, 90, 92, 2389
Process 2, System 3: 94, 95
Process 2, System 5: 98, 101, 102
Process 2, System 6: 111, 112, 113
Process 2, System 11: 159, 160
Process 3, System 1: 164 to 167, 170, 172 to 181, 184, 1336 to 1349, 2382, 2387
Process 3, System 2: 186, 188, 189, 191, 196, 199, 201, 204, 1352 to 1355
Process 3, System 4: 241
Process 3, System 6: 242, 245 to 247, 249
Process 3, System 7: 1363
Process 4, System 1: 253 to 256, 258, 262, 265, 268, 270, 272, 277, 278, 282, 283. 287, 1364, 1366, 1367, 1372, 1374 to 1376, 1378 to 1381
Process 4, System 2: 291, 1400 to 1403
Process 4, System 3: 292, 293, 297, 299
Process 4, System 4: 302, 304
Process 4, System 5: 308, 310, 311
Process 4, System 7: 1975 to 1977, 1980, 1981, 1986
Process 5, System 1: 314 to 317, 319, 320, 323 to 332
Process 5, System 2: 335 to 338, 340, 343, 348 to 353
Process 5, System 3: 356, 360, 1413
Process 5, System 4: 401, 406, 407, 412, 414
Process 6, System 1: 426, 427, 429, 431, 434, 435, ~~to~~ 437, 440, 444, 445, ~~451~~, ~~454~~ 455 to 456, 458, 460
Process 6, System 2: 462, 469, 474 to 475, 477 to 481, 483, 486
Process 6, System 3: 490, 494, 495, 498, 501, 503, 506, 507, 509, 510, 512, 513, 518, 520, 521, 525 to 528
Process 7, System 1: 542 to 548, 550, 552 to 558, 560, 562 to 569
Process 7, System 2: 2892, 2893
Process 8, System 1: 583, 584, 593 to 597

Process 8, System 2: 608, 610, 612 to 614, 622, 624
Process 9, System 1: 631, 632, 638 to 652, 659 to 663, 666 to 668, 1482, 1483, 1486 to 1488, 1491, 1493 to 1495, 1497 to 1502, 1528, 1533 to 1536, 2019
Process 9, System 2: 672 to 681, 685
Process 9, System 9: 637, 653, 656, 658, 664
Process 10, System 1: 706
Process 10, System 2: 709, 711 to 715, 720, 721
Process 10, System 3: 725
Process 11, System 1: 730
Process 12, System 1: 756, 759
Process 12, System 2: 760 to 762, 764
Process 12, System 3: 765 to 770
Process 12, System 4: 771, 772, 774
Process 12, System 8: 785, 790, 2365, 2366
Process 12, System 9: 794, 797 to 799
Process 12, System 10: 806
Process 12, System 12: 815, 818
Process 12, System13: 823, 826, 828
Process 12, System 16: 830
Process 12, System 22: 853, 854
Process 12, System 24: 860, 861, 863, 864, 865
Process 12, System 25: 866, 867, 869, 870, 871, 2003
Process 12, System 27: 873 to 875
Process 15, System 7: 1644 to 1646, 1648, 1649
Process 16, System 3: 2115 to 2120, 2353, 2394
Process 21, System 1: 1304
Process 21, System 2: 1307
Process 21, System 4: 1315, 1316, 1319, 1323 to 1325, 1659

[**RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996**]

[Systems subject to this condition: Process 6, System 1, 2, 3; Process 21, System 4]

S58.1 The South Area Flare Gas Recovery System and North Area Flare Gas Recovery System shall only be used to receive and handle vent gases from the following Process(es) and System(s):

No. 1 Crude Unit (Process: 1, System: 1)
Coking Units (Process: 2, System: 1 & 2)
Coker Blowdown Facility (Process: 2, System: 3)
Coker Gas Compression & Absorption Unit (Process: 2, System: 5)

Blowdown Gas Compression System (Process: 2, System: 6)
Coker Gas Treating / H2S Absorption Unit (Process: 2, System: 11)
Fluid Catalytich Cracking Units (Process: 3, System: 1, 2 & 3)
Propylene Tetramer Unit (Process: 3, System: 6)
Superfractionation Unit (Process: 4, System: 1)
Naphtha Splitter Unit (Process: 4, System: 2)
Light Ends Depropanizer Unit (Process: 4, System: 3)
Straight Run Light Ends Depropanizer Unit (Process: 4, System: 4)
North Area Deisobutanizer Unit (Process: 4, System: 5)
Coker Gasoline Fractionation Unit (Process: 4, System: 7)
Liquid Recovery Unit (Process: 4, System: 8)
C3 Splitter Unit (Process: 4, System: 9)
Jet Fuel Hydrotreating Unit (Process: 5, System: 1)
Mid-Barrel Desulfurizer Unit (Process: 5, System: 2)
Fluid Feed Hds Unit (Process: 5, System: 3)
Light Gasoline Hydrogenation Unit (Process: 5, System: 4)
Naphtha HDS Unit (Process: 5, System: 5)
Naphtha HDS Reactor Heater (Process: 5, System: 6)
Catalytic Reformer Units (Process: 6, System: 1, 2 & 3)
Hydrogen Plants (Process: 7, System: 1 & 2)
Hydrocracking Units (Process: 8, System: 1 & 2)
Alkylation Unit (Process: 9, System: 1)
Catalytic Polymerization Unit (Process: 9, System: 2)
C5 Alkylation Depentanizer Unit (Process: 9, System: 6)
C5 Alkylation Unit (Process: 9, System: 7)
Naphtha Isomerization Unit (Process: 9, System: 8)
Iso-Octene Unit (Process: 9, System: 9)
Butane Isomerization Unit (Process: 9, System: 10)
Fuel Gas Mix System (Process: 10, System: 1)
LPG Recovery System (Process: 10, System: 2)
Liquid Petroleum Gas Drying Facilities (Process: 10, System: 3)
Uop Merox Unit (Process: 12, System: 8)
MDEA Regeneration Units (Process: 12, System: 9, 10, 11, 12 & 13)
North & South Sour Water Treatment Systems (Process: 12, System: 14 & 15)
Sulfur Recovery Units (Process: 13, System: 1, 2, 3 & 4)
Claus Tail Gas Treating Units (Process: 13, System: 5 & 7)
LPG Tank Truck Loading/Unloading Rack (Process: 14, System: 10)
LPG Rail Car Loading/Unloading Rack (Process: 14, System: 11)
Refinery Vapor Recovery System (Process: 21, System: 4)

The flare gas recovery system shall be operated in full use when any of the above Process(es) and System(s) is in operation. Full use means one of two compressor trains (Process 21, System 10 and Process 21, System 11) is online at any given time, except during planned startups or shutdowns when both compressors trains shall be online.

[**RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996**]

[Systems subject to this condition: Process 21, System 11]

B61.4 The operator shall not use fuel gas, except uncombined natural gas which is not regulated by the condition, containing the following specified compounds:

Compound	ppm by volume
H2S greater than	160

[**40CFR 60 Subpart J, 6-24-2008**]

[Devices subject to this condition: D532, D535, D1439]

C1.19 The operator shall limit the heat input to no more than 255 MM Btu per hour.

[**RULE 1301, 12-7-1995**]

[Devices subject to this condition: D532]

C1.20 The operator shall limit the heat input to no more than 310 MM Btu per hour.

[**RULE 1301, 12-7-1995**]

[Devices subject to this condition: D535]

D90.4 The operator shall continuously monitor the H2S concentration in the fuel gases before being burned in this device according to the following specifications:

The operator shall use Gas Chromatograph meeting the requirements of 40CFR60 Subpart J to monitor the parameter.

The operator shall also install and maintain a device to continuously record the parameter being monitored.

The operator may monitor the H2S concentration at a single location for fuel combustion devices, if monitoring at this location accurately represents the concentration of H2S in the fuel gas being burned in this device.

[**40CFR 60 Subpart J, 6-24-2008**]

[Devices subject to this condition: D532, D535, D1439]

D328.1 The operator shall determine compliance with the CO emission limit(s) either: (a) conducting a source test at least once every five years using AQMD Method 100.1 or 10.1; or (b) conducting a test at least annually using a portable analyzer and AQMD-approved test method. The test shall be conducted when the equipment is operating under normal conditions to demonstrate compliance with the CO emission limit(s). The operator shall comply with all general testing, reporting, and recordkeeping requirements in Sections E and K of this permit.

[**RULE 3004(a)(4)-Periodic Monitoring, 12-12-1997; RULE 407, 4-2-1982**]

[Devices subject to this condition:D532, D535, D1439]

E71.9 The operator shall not operate this equipment to process VOC unless the pressure control valve 29-PV-410B connected to the vapor recovery system is closed at all times except during startup, shut down, breakdown, or emergency. The operator shall continuously monitor and record the valve stem position. Such records shall be maintained for at least two years and made available to District personnel upon request.

[**RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996**]

[Devices subject to this condition: D508]

E73.4 Notwithstanding the requirements of Section E conditions, the operator is not required to use both the North and South Area Flare Gas Recovery Systems (Process 21, System 10 & Process 21, System 11) concurrently if:

The load on the flare gas recovery system is not sufficient to require both compressor systems to be online.

[**RULE 1303(a)(1)-BACT, 5-10-1996**]

[Devices subject to this condition: D2800]

E73.5 Notwithstanding the requirements of Section E conditions, the operator is not required to use all three vapor recovery compressors concurrently if:

The load on the vapor recovery system is not sufficient to require all three compressors to be online.

[**RULE 1303(a)(1)-BACT, 5-10-1996**]

[Devices subject to this condition: D1313, D1314, D807]

E74.2 Notwithstanding the requirements of Section E conditions, the operator is not required to vent this equipment to the refinery vapor recovery system during periods of maintenance, equipment malfunction, or emergency. The operator shall not disconnect from the refinery vapor recovery system unless it has been established through sampling/analysis that the product stored has an initial boiling point greater than 302 deg. Fahrenheit, or has an organic vapor pressure of 0.1 psia or less. Weekly sampling/analysis, according to district approved methods, is required.

[**RULE 1303(a)(1)-BACT, 5-10-1996**]

[Devices subject to this condition : DX1, DX9, D2907, D2908]

E193.X1 The operator shall operate and maintain this equipment according to the following specifications:

The seal system serving the compressor shall be supplied with nitrogen gas. The operator shall monitor and record the nitrogen gas volumetric flow rate on a weekly basis. The atmospheric vent of the nitrogen seal gas shall be monitored for VOC emissions using EPA Reference Method 21, with the frequency required by District Rule 1173 or when the nitrogen seal flow rate indicates packing wear. When a VOC leak is detected, the seal system shall be repaired according to the schedule stated in District Rule 1173, or alternately the seal vent shall be connected to the Refinery Vapor Recovery System (Process 21, System 4).

[**RULE 1173, 5-13-1994**; RULE 1173, 2-6-2009; **40 CFR 60 Subpart GGG, 6-2-2008**]

[Devices subject to this condition : D434, D435, D477, D478]

E193.X2 The operator shall operate and maintain this equipment according to the following specifications:

Offgases from compressor shall be vented to the North Area Flare Gas Recovery System (Process 21, System 11).

[**RULE 1173, 5-13-1994**; RULE 1173, 2-6-2009; **40 CFR 60 Subpart GGG, 6-2-2008**]

[Devices subject to this condition : D451, D476]

E336.X1 The operator shall vent the vent gases from this equipment as follows:

All vent gases from initial catalyst depressurization and catalyst purging operations of catalyst regeneration shall be directed to either the FCCU Flare System (Process 21, System 2) or to the Hydocracker Flare System (Process 21, System 3). Venting shall only occur to one of these flare systems at any one time.

Initial catalyst depressurization and catalyst purging operations in this equipment shall not be undertaken unless either of these flare systems is in full use and has a valid permit to receive vent gases from this equipment.

[**40CFR 63 Subpart UUU, 4-20-2006**]

[Devices subject to this condition : D446, D447, D448, D449, D457, D461, D463, D464, D465, D514, D515, D516, D517]

E336.X2 The operator shall vent the vent gases from this equipment as follows:

During the coke burnoff and catalyst rejuvenation steps of catalyst regeneration, vent gases from catalytic reactors shall be treated by Internal Scrubber (DX2) and then shall be directed through the Reformer Flash Tank (D440) and into the flame zone of the No. 1 Reformer Heater (D532).

Coke burnoff and catalyst rejuvenation steps in this equipment shall not be undertaken unless Internal Scrubber (DX2) and No. 1 Reformer Heater (D532) are in full use have valid permits to receive vent gases from this equipment.

[**40CFR 63 Subpart UUU, 4-20-2006**]

[Devices subject to this condition : D446, D447, D448, D449, D457]

E336.X3 The operator shall vent the vent gases from this equipment as follows:

During the coke burnoff and catalyst rejuvenation steps of catalyst regeneration, vent gases from catalytic reactors shall be treated by Internal Scrubber (DX7) and then shall be directed through the Reformer Flash Tank (D474) and into the flame zone of the No. 2 Reformer Heater (D535).

Coke burnoff and catalyst rejuvenation steps in this equipment shall not be undertaken unless Internal Scrubber (DX7) and No. 2 Reformer Heater (D535) are in full use and have valid permits to receive vent gases from this equipment.

[**40CFR 63 Subpart UUU, 4-20-2006**]

[Devices subject to this condition : D461, D463, D464, D465]

E336.X4 The operator shall vent the vent gases from this equipment as follows:

During the coke burnoff and catalyst rejuvenation steps of catalyst regeneration, vent gases from catalytic reactors shall be treated by Internal Scrubber (DX8) and then shall be directed through the Reformer Flash Tank (D512) and into the flame zone of the No. 3 Reformer Heater (D1439).

Coke burnoff and catalyst rejuvenation steps in this equipment shall not be undertaken unless Internal Scrubber (DX8) and No. 3 Reformer Heater (D1439) are in full use and have valid permits to receive vent gases from this equipment.

[**40CFR 63 Subpart UUU, 4-20-2006**]

[Devices subject to this condition : D514, D515, D516, D517]

H23.1 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
H2S	40CFR60, SUBPART	J

[**40 CFR 60 Subpart J, 6-24-2008**]

[Devices subject to this condition: D532, D535, D1439]

H23.3 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
VOC	District Rule	1173
VOC	40CFR60, SUBPART	GGG

[**RULE 1173, 5-13-1994**; RULE 1173, 2-6-2009; **40 CFR 60 Subpart GGG, 6-2-2008**]

[Devices subject to this condition: D2489, D2490, D2491, D2545, D2802]

H23.12 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
Benzene	40CFR61, SUBPART	FF

[**40 CFR 61 Subpart FF, 12-4-2003**]

[Devices subject to this condition: D430, D1325]

H23.33 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
ROG	40CFR60, SUBPART	GGGa

[**40 CFR 60 Subpart GGGa, 6-2-2008**]

[Devices subject to this condition: D2800, D2807]

K67.1 The operator shall keep records, in a manner approved by the District, for the following parameter(s) or item(s):

fuel rate consumed

heating value of the fuel gas (HHV)

[**RULE 1303(b)(2)-Offset, 5-10-1996**]

[Devices subject to this condition : D532, D535, D1439]

K67.X1 The operator shall keep records, in a manner approved by the District, for the following parameter(s) or item(s):

Volumetric flow rate of nitrogen buffer gas to the compressor seal system

[**RULE 1173, 5-13-1994**; RULE 1173, 2-6-2009; **40 CFR 60 Subpart GGG, 6-2-2008**]

[Devices subject to this condition : D434, D435, D477, D478]